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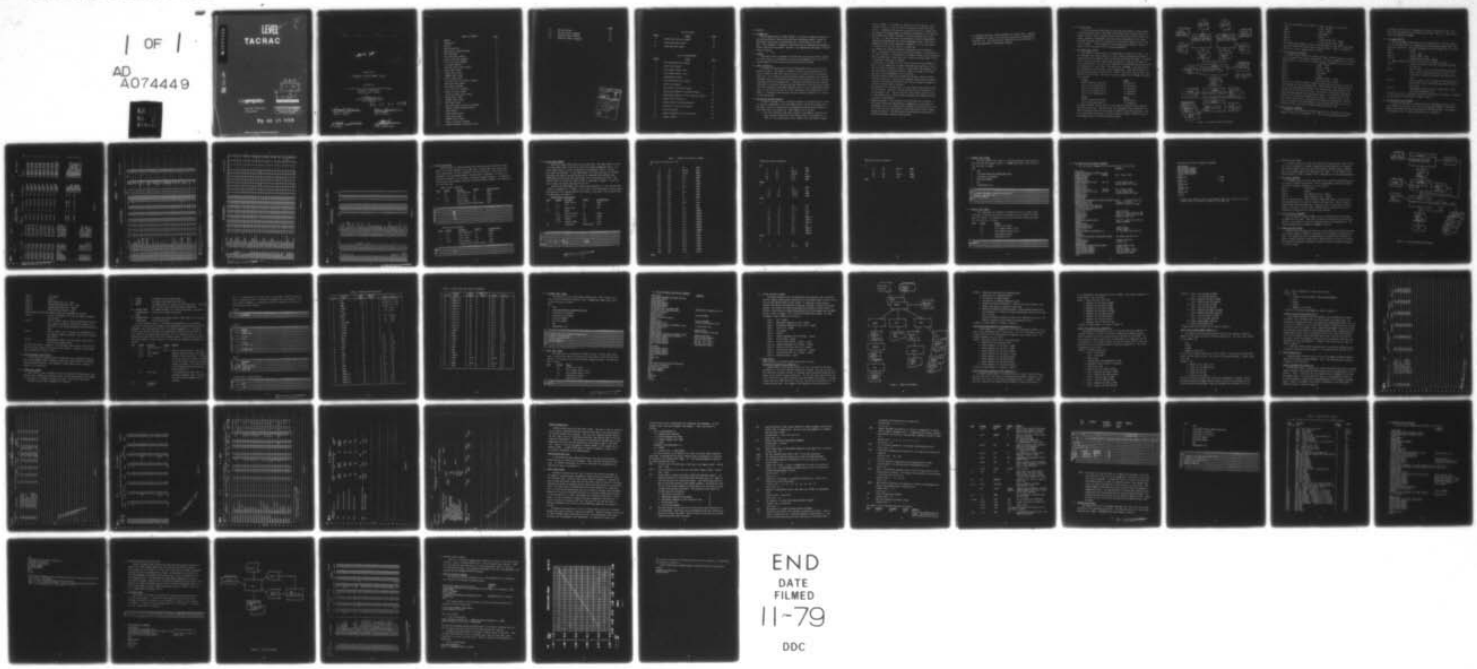

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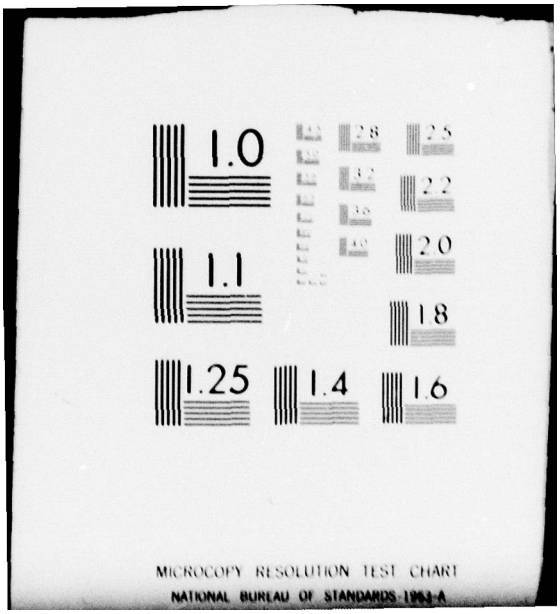
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Edwin /Schwemmer Bradley B. /Dunn

(11) OCT 78

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USERS GUIDE

(6) US ROLAND II LOGISTICS MODEL (ROLOG).
Users Guide.

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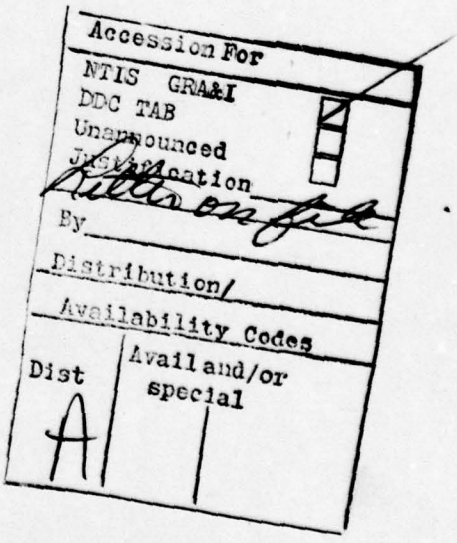
TABLE OF CONTENTS



LIST OF TABLES

LIST OF ILLUSTRATIONS

1.0 GENERAL

1.1 Introduction

The US ROLAND Logistics Model (ROLOG) is a series of computer programs for processing LSAR data, updating the data base, performing logistic support effectiveness calculations, and reporting data in both graphic and tabular formats. This document is intended to assist the user in executing the programs to achieve realism in the outputs specific to the operational and support scenarios being evaluated.

1.2 Purpose

The ROLOG system is designed to evaluate the cost and availability impacts of various logistics alternatives and to provide management with a tool for assessing impact of these alternatives before decisions are made.

1.3 Model Versatility

The ROLOG system utilizes up to four maintenance levels (I) and (J) geographic locations. The model is designed to bypass any maintenance level or level of supply if that level does not exist in a location (J) as indicated by input data. This permits utilizing different support structures for different geographic areas (a one Battalion deployment would probably not have a GSU while a multiple Battalion deployment may). The model also permits two user imposed constraints in essential item provisioning, probability of stockout (not having stock when required) and maximum acceptable wait for stock at the remove/replace location. By setting the wait to a very long period it can effectively be removed as a constraint, when desired, and only stockout probability is a factor in the computations.

1.4 Application to Other Systems

An effort was made to make the ROLOG as general as possible and still meet all specific requirements of the US ROLAND system. Use of the programs with any other system will require some reprogramming and possibly the changing of some values now in the equations. Some examples are as follows:

- o The skill specialty codes (SSC) entered in the namelist constants are those currently authorized by the Manning Tables and Equipment Lists (MTEL) for the Organization, Direct Support Unit, and General Support

Unit for ROLAND. (The number and value of the skill specialty codes should be input by a user to reflect the specific system under evaluation). A maximum of 30 codes are available to the user. Should more be required some reprogramming of dimension statements will be required.

- The programs are coded to evaluate a two area deployment (J) in any one run. If more areas are to be evaluated it can be accomplished by running the programs once for each two geographic areas. Some reprogramming of input values, dimension statements, etc. will be required to evaluate more than two areas in a single run.
- The ROLAND LSAR contains conditional maintenance task distribution (MTD - percentage of those received which are required - not percentage of total failures). An algorithm is included to convert these conditional MTD to unconditional. When used with a system utilizing a newer version of LSAR these cards must be removed.
- No LSAR base is available for the carrier vehicles for the ROLAND Fire Unit. In the computation of system operational availability, a value for the vehicle availability (TVOA) is input rather than computed. For any system whose subsystems analysis is wholly contained in the LSAR data base some reprogramming will be necessary.
- The order and ship times (OST) entered are the most current available for missile material. When used with another system, the most current listing of OST should be checked for the area and commodity command involved and changes made as necessary.
- The probability of stockout (PSO) is a user imposed constraint utilized in provisioning. The PSO is entered for each level of stockpoint in each geographic area. The user may test with various values to arrive at the optimum level of provisioning which meets the systems cost and availability requirements.
- Support equipment is not available for utilization all of the time. A utilization factor has been applied to compensate for time spent in maintenance, self test, warmup times, movement to the point of use, etc. This factor may vary from system to system and from one level of maintenance to another. The SEUK should be evaluated for the specific system and operational scenario being analyzed.

- For manpower costing, a variable productivity factor (PRF) is applied to compensate for leave, sick, military training time, housekeeping functions, etc. The value of this factor may vary for different systems and operational or deployment concepts.

2.0 DATA BASE BUILD

A new data base for ROLOG must be built each time there is a major update to the system LSAR tapes. Since LSAR is the output of an iterative logistics support analysis, which continues well into the life cycle of the system, these update programs are meaningful even after initial deployment of the system. The ROLOG Data Base build is a function of four distinct computer routines run as one program. A flow diagram of the Data Base Build Program is shown in Figure 1 and is described in the following paragraphs.

2.1 Read LSAR Tapes (BUFTP)

The Logistics support analysis record (LSAR) is stored on two tapes. For the US ROLAND system these tapes are 9 track, 1600 BPI prepared on an IBM 360 system and are not compatible with the CDC 6600 system used for ROLQG. The BUFTP routine reads the variable length tapes and outputs 7 track 800 BPI tapes for use on the CDC 6600. The first tape, LSAFU03M is the functional group code master, also referred to as the A Tape. The second tape, LSAPU08M, is the parts master file, referred to as the H Tape or provisioning tape. Cards must be input to describe the tapes and the record size. BUFTP is run twice, once for the A Tape and once for the H Tape. The record layout and length for the ROLAND LSAR Tapes is as follows:

A Tape	Length
One A1 record for each item	203 characters
Zero to N A4 records per A1	308 characters
Zero to N C4 records per A4	94 characters
One to N D4 records per C4	61 characters
Zero to N D7 records per C4	61 characters

H Tape	Length
One H1 record for each item	482 characters
One to N H9 records per H1	77 characters

The output of BUFTP consist of two 7 track, 800 BPI tapes previously referred to and two disk files. The disk files, one containing A Tape information, the other containing H Tape data are inputs to EXTAPE for the data base build. The two 7 track tapes are stored in the tape library as backup. BUFTP also prints an unformated copy of the data base upon request.

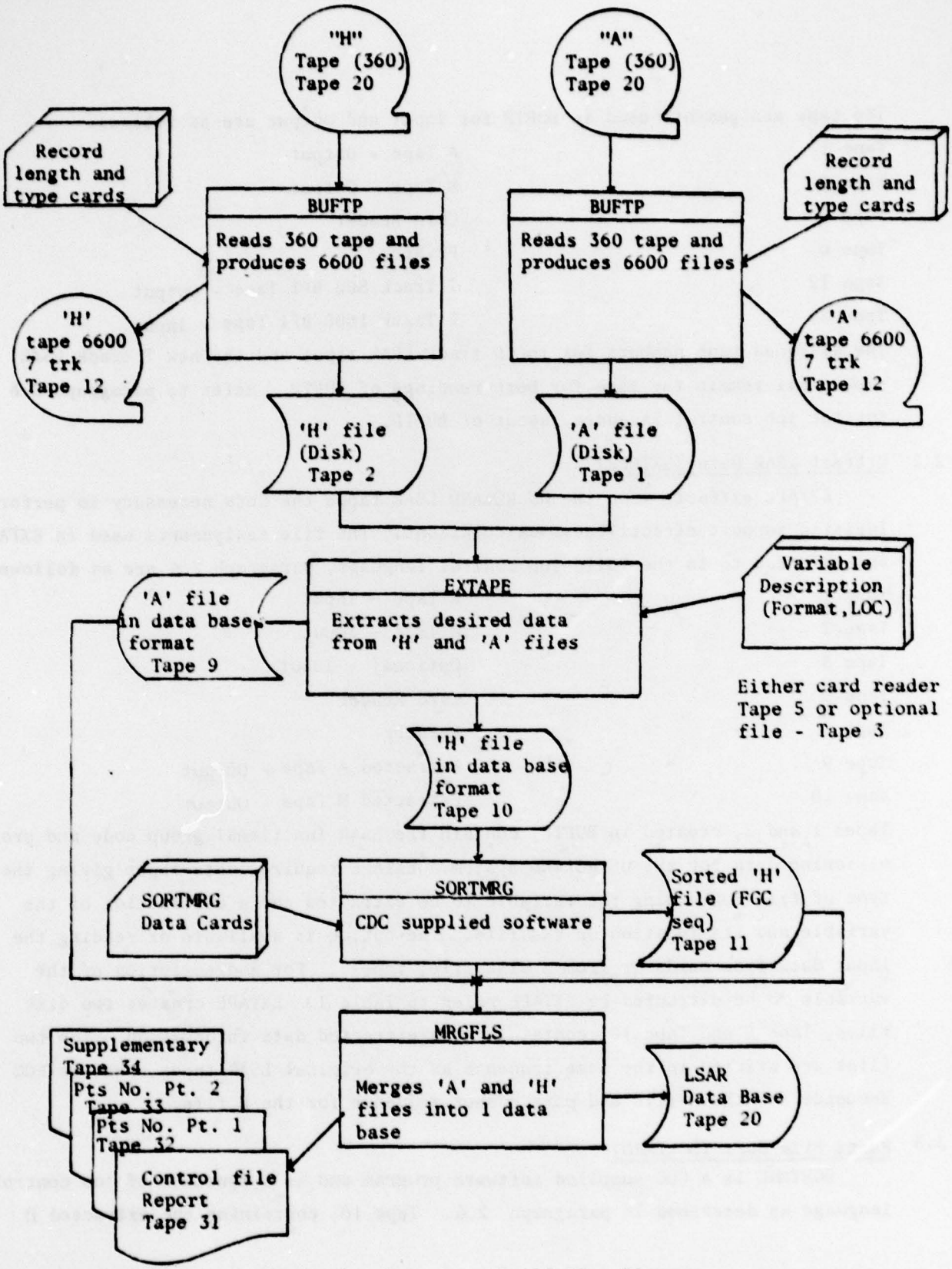


Figure 1. Data Base Build Flow Diagram

The tape assignments used in BUFTP for input and output are as follows:

Tape 1	A Tape - Output
Tape 2	H Tape - Output
Tape 5	Card Reader
Tape 6	Printer
Tape 12	7 Track 800 BPI Tape - Output
Tape 20	9 Track 1600 BPI Tape - Input

The assigned tape numbers for the 9 track LSAR tapes and the new 7 track LSAR tapes will remain the same for both runnings of BUFTP. Refer to paragraph 2.6 for the job control language layout of BUFTP.

2.2 Extract LSAR Data (EXTAPE)

EXTAPE extracts from the US ROLAND LSAR tapes the data necessary to perform logistic support effectiveness calculations. The file assignments used in EXTAPE and referred to in the Build job control language, paragraph 2.6 are as follows:

Tape 1	A Tape - Input
Tape 2	H Tape - Input
Tape 3	Optional - Input
Tape 5	Card Reader
Tape 6	Printer
Tape 9	Extracted A Tape - Output
Tape 10	Extracted H Tape - Output

Tapes 1 and 2, created in BUFTP, contain the LSAR functional group code and provisioning data for the US ROLAND system. EXTAPE requires data input giving the type of file containing the variable to be extracted and a description of the variable and its location on the file. The option is available of reading the input data from cards or from a disk file, Tape 3. For a description of the variable to be extracted by EXTAPE refer to Table I. EXTAPE creates two disk files, Tape 9 and Tape 10, containing the extracted data information. The two files are written in the same sequence as the original LSAR tapes, that is FGC sequence for the A file and part number sequence for the H file.

2.3 Parts File Sort (SORTMRG)

SORTMRG is a CDC supplied software program and is a function of job control language as described in paragraph 2.6. Tape 10, containing the extracted H

tape data is sorted into FGC sequence to conform to the order of the A file. Data cards are required to describe the sort order. Tape 11, is the sorted H tape file produced by SORTMRG.

2.4 File Merge (MRGFLS)

The routine MRFGLS treats the A file as the master file and the sorted H file as the transaction file, merging the two and creating a ROLOG Master Data Base File (work file). The file assignments utilized in MRGFLS are as follows:

Tape 6	Printer
Tape 9	A Tape - Input
Tape 11	Sorted H Tape - Input
Tape 20	ROLOG Master Data Base - Output

MRGFLS produces four tabular report files described as follows:

Tape 31	Control File Report lists task and support equipment for each FGC.
Tape 32	Part No. Report, Part 1 contains dimension and weight data, quantity installed, unit price, washout rate, essentially and source maintenance and recoverability code.
Tape 33	Part No. Report, Part 2 contains the maintenance task distribution, repair turnaround time, and the maintenance factor.
Tape 34	Supplementary Report lists part number name, generic code and miscellaneous data.

One data card input is required to determine which reports are required. Examples of each report are illustrated in Figures 2 thru 5.

2.5 Data Base Build Input Formats

As the data base build is comprised of four independent routines, one of which (BUFTP) is run twice, and a CDC software program (SORTMRG), separators must occur between data decks pertaining to different routines. The separater, a multi-punch 7/8/9, is herein, referred to as a terminator.

DATA BASE REPORT
CONTROL FILE REPORT

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FGC	PART NUMBER	NAME	TASK SEQ	TASK	TFR	XMET	SSC	MHR	EQ SEQ	SMPN	XICC	SNME	ISQ
02AC3ACAD	11517810	VIDAMP GEN TMG	1	HGFXXYA	.07	.36	B27?10	.36	1	14364100	K	SCDR,FLT TIP,4MM	1
									2	150/6	K	SCDR,FLT TIP,6MM	1
02A03ACADAA	11517813	CKT CD ASSY AMP											
02A03ACAE	11515904	GATING CONT SWP	1	HGFXXYA	.04	.36	B27?10	.36	1	14364100	K	SCDR,FLT TIP,4MM	1
									2	150/6	K	SCDR,FLT TIP,6MM	1
02A03ACAEAA	11515906	CKT CD ASSY GAT											
02AC3ACAF	11515912	MISSLE DSPLY GE	1	HGFXXYA	.07	.36	B27?10	.36	1	14364100	K	SCDR,FLT TIP,4MM	1
									2	150/6	K	SCDR,FLT TIP,6MM	1
02A03ACAFAA	11515914	CKT CD ASSY MSL											
02AC3ACAG	11515920	INTRG IFF	1	HGFXXYA	.05	.36	B27?10	.36	1	14364100	K	SCDR,FLT TIP,4MM	1
									2	150/6	K	SCDR,FLT TIP,6MM	1
02A03ACAGAA	11515922	CKT CD ASSY IFF											
02A03ACAH	11515926	SWP GEN CLAMP	1	HGFXXYA	.09	.36	B27?10	.36	1	14364100	K	SCDR,FLT TIP,4MM	1
									2	150/6	K	SCDR,FLT TIP,6MM	1
02A03ACAHAA	11515930	CKT CD ASSY SWP											
02A03ACAI	11515934	GEN REF 1 SIG	1	HGFXXYA	.06	.36	B27?10	.36	1	14364100	K	SCDR,FLT TIP,4MM	1
									2	150/6	K	SCDR,FLT TIP,6MM	1
02A03ACAIAA	11515941	CKT CD ASSY GEN											
02A03ACAJ	11517815	DRIVER 500 HZ	1	HGFXXYA	.01	.36	B27?10	.36	1	14364100	K	SCDR,FLT TIP,4MM	1
									2	150/6	K	SCDR,FLT TIP,6MM	1
02A03ACAJAA	11517822	CKT CD ASSY AOA											
02A03ACAK	11515947	PWR SPLY HV	1	HGFXXYA	.53	.59	B27?10	.59	1	14364100	K	SCDR,FLT TIP,4MM	1
									2	14370100	K	SCDR,FLT TIP,5.5MM	1
									3	150/6	K	SCDR,FLT TIP,6MM	1
02AC3ACAKAA	11516673	CKT CD ASSY AMP											
02AC3ACAKAA	11516669	AMPL CAS HV PWR											
02AC3ACAKAB	11515951	CKT CD ASSY PWR											
02A03ACAL	11516624	CHASSIS PPI ASS											
02AC3AD	11517794	HOUSING,SUPPORT											
02A03AE	11517806	PLATE IDENT											
02AC4	11519241	TRANSFORMER,50	1	BGOXXAA	.01	.17	B24?10	.17	1	PSE224	2	ADAPTER	1
									2	2000A	L	MULTR,DIG.	1
			2	HGOXXAA	.01	.43	B24?10	.53	1	VSM-810	K	NR,BOX AND DE,10MM	1
									2	11516616	1	KEY,SKT HD SCR	1
									3	11564139	B	DOLLY,LOW PROFILE	1
									4	9832	K	SCDR,FLT TIP 1/4	1
			3	HGOXXAA	.01	2.37	B24?10	2.70	1	11518989	2	CONTROL UNIT(2RC)	1
									2	11519652	2	TESTER UNIT(2RA)	1
									3	11520022	2	POWER SUPPLY(2RB)	1
									4	11560875	2	CABLE SET	1
									5	2000A	L	MULTIMETER,DIGITAL	1
02A04AB	11518251	COVER ASSY											
02AC4AC	11518242	SEAL,COVER ASSY											
02AC4AD	11519243	SCREW CAPTIVE											
02A04AE	3301-226	O-RING											
02A04AF	11519244	BSHG,ISLP XFMR											
02AC4AG	4100100-122	SCREW,SLTD PAN											
02AC4AH	4100100-17	WASHER,PLAIN											
02A04AJ	3300-999	CAP,PROTECTIVE											
02AC4AJ	4100100-332	CLIP CIRCLE											

Figure 2

FSC	PART NUMBER	XLNGTH	WDTH	HGHT	VOLP	WTUP	WTP	IQEI	SMRC	L S S	R P S	I P L T	UPRC	UPM	XMRK
B2FUAAAFJE	SCD6125-75	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	6	22.00		0.00
B2FUAAAFJP	11543864	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	1	T	6	439.00		0.00
B2FUAAAFJN	RA12.8/12X1	0.0	0.0	0.0	0.00	0.00	0.00	54	PAFZZA	1	T	6	3.50		0.00
B2FUAAAFJQ	85512-2358	0.0	0.0	0.0	0.00	0.00	0.00	48	PAFZZA	3	T	4	1.75		0.00
B2FUAAAFJP	R32.14/28X1.5	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	4	28.30		0.00
B2FUAAAFJQ	85C28-2358	0.0	0.0	0.0	0.00	0.00	0.00	4	PAFZZA	3	T	4	1.75		0.00
B2FUAAAFJS	M8X2_NFE27161ATU	0.0	0.0	0.0	0.00	0.00	0.00	14	KAFZZA	3	T	4	1.30		0.00
B2FUAAAFJT	J8.40IN6P9883C	0.0	0.0	0.0	0.00	0.00	0.00	0	PAOZZA	3	T	4	.10		0.00
B2FUAAAFJU	11533981	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFFFD	1	R	12	14691.00		.05
B2FUAAAFJV1	M8X1.25IT912-8.8B	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	3	T	4	0.00	E	0.00
B2FUAAAFJW1	S3CADPLTQQP416T2	0.0	0.0	0.0	0.00	0.00	0.00	0	PAOZZA	3	T	4	.03		0.00
B2FUAAAFJX1	11533942	0.0	0.0	0.0	0.00	0.00	0.00	0	KDFZZA	5	T	9	71.00		0.00
B2FUAAAFJY1	M8X45DIN912-8.8B	0.0	0.0	0.0	0.00	0.00	0.00	0	PAOZZA	7	T	4	.02		0.00
B2FUAAAFJZ1	S5C8DPLTQQP416T2	0.0	0.0	0.0	0.00	0.00	0.00	0	PAOZZA	3	T	4	.15		0.00
B2FUAAAFKA1	11533943	0.0	0.0	0.0	0.00	0.00	0.00	0	PAOFFA	1	R	12	4714.00		.05
B2FUAAAFKC2	11533942	0.0	0.0	0.0	0.00	0.00	0.00	0	KDFZZA	5	T	9	71.00		0.00
B2FUAAAFKD2	11533940	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	3	T	5	9.50		0.00
B2FUAAAFKE2	7131-828.6-R-1.2	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	5	.10		0.00
B2FUAAAFKF2	11533947	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	5	19.00		0.00
B2FUAAAFKG2	MS28775-192	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	4	1.50		0.00
B2FUAAAFKH2	11533938	0.0	0.0	0.0	0.00	0.00	0.00	0	KDOZZA	3	T	6	233.00		0.00
B2FUAAAFKI2	MS28775-192	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	4	1.50		0.00
B2FUAAAFKJ2	11533937	0.0	0.0	0.0	0.00	0.00	0.00	0	PAOZZA	3	T	6	2922.00		0.00
B2FUAAAFKO2	MS28775-192	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	4	1.50		0.00
B2FUAAAFKP2	11545881	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	3	T	5	9.50		0.00
B2FUAAAFKQ2	28X1.2DIN472	0.0	0.0	0.0	0.00	0.00	0.00	0	PAOZZA	7	T	9	.22		0.00
B2FUAAAFKR2	11533939	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	5	32.00		0.00
B2FUAAAFKS2	11533887	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	3	T	9	30.00		0.00
B2FUAAAFKT2	11533941	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	5	110.00		0.00
B2FUAAAFKU2	11533946	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	3	T	9	13.00		0.00
B2FUAAAFKV2	11533935	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	5	442.00		0.00
B2FUAAAFKW2	11533948	0.0	0.0	0.0	0.00	0.00	0.00	0	KDFZZA	3	T	9	39.00		0.00
B2FUAAAFK32	S3CADPLTQQP416T2	0.0	0.0	0.0	0.00	0.00	0.00	0	PAOZZA	3	T	4	.03		0.00
B2FUAAAFLA1	11534483	0.0	0.0	0.0	0.00	0.00	0.00	0	KDOZZA	7	T	9	40.00		0.00
B2FUAAAFLB1	85817.66-2868	0.0	0.0	0.0	0.00	0.00	0.00	0	PAOZZA	7	T	5	1.60		0.00
B2FUAAAFLC1	11534927	0.0	0.0	0.0	0.00	0.00	0.00	0	PAOZZA	7	T	6	356.00		0.00
B2FUAAAFLD1	MS28775-233	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	4	.02		0.00
B2FUAAAFLE1	11535127	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	5	76.00		0.00
B2FUAAAFLF1	M6X18DIN912-8.8B	0.0	0.0	0.0	0.00	0.00	0.00	0	PAOZZA	3	T	4	0.00	E	0.00
B2FUAAAFLG1	S5CADPLTQQP416T2	0.0	0.0	0.0	0.00	0.00	0.00	256	PAOZZA	3	T	4	.03		0.00
B2FUAAAFLM1	11533908	0.0	0.0	0.0	0.00	0.00	0.00	0	KDOZZA	3	T	5	186.00		0.00
B2FUAAAFLI1	11533829	0.0	0.0	0.0	0.00	0.00	0.00	0	PAOZZA	7	T	5	19.00		0.00
B2FUAAAFLJ1	11533830	0.0	0.0	0.0	0.00	0.00	0.00	0	PAOZZA	3	T	5	163.00		0.00
B2FUAAAFLK1	MHX14DIN912-8.8B	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	4	.25		0.00
B2FUAAAFLL1	S4CADPLTQQP416T2	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	3	T	4	.03		0.00
B2FUAAAFLM1	11534985	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	5	213.00		0.00
B2FUAAAFLN1	MS28775-151	0.0	0.0	0.0	0.00	0.00	0.00	1	PAFZZA	7	T	6	.90		0.00
B2FUAAAFLO1	SPA198	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	5	.95		0.00
B2FUAAAFLP1	11534556	0.0	0.0	0.0	0.00	0.00	0.00	0	KDFZZA	7	T	5	64.00		0.00
B2FUAAAFLQ1	MS28775-349	0.0	0.0	0.0	0.00	0.00	0.00	0	PAFZZA	7	T	4	1.05		0.00

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Figure 3

DATA BASE REPORT
PARTS NUMBER-PART-2

FGC	PART NUMBER	XDC	XFC	XMC	XDC	XDO	XFO	XMO	XDO	IDC	IFC	IMC	IDC	IDO	IFO	IMO	IDO	IPQNMA	XMFC	XMFAC
B2ECBY	11535312	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	1	1
B2ECB2	11535304	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	5	5
B2ECB3	M3X5DIN912C2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	10	10
B2ECB1	3M6X5DIN782C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	5	5
B2ECCA	11544356	.25	.99	0.00	0.00	.25	.99	0.00	0.00	1	75	0	0	1	95	0	0	1	50	50
B2ECCAAA	11544358	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	5
B2ECCAAB	8X8DIN127NRST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	10
B2ECCAAC	8.4DIN433NPST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	5
B2ECCAAD	CR455X5ECV156	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	30	30
B2ECCAAE	11545220	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	1	1
B2ED	11544691	0.00	.95	0.00	0.00	0.00	.95	0.00	0.00	0	30	0	0	0	50	0	0	1	1	1
B2EDAA	11544638	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	10
B2EDAE	MS35338-136	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	55
B2EDAC	3.7DIN433NRST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	45
B2EDAF	11545520	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	20	20
B2EDAK	6803	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	5	5
B2EDAR	11542471	0.00	.95	0.00	0.00	0.00	.95	0.00	0.00	0	30	0	0	0	50	0	0	1	1	1
B2EDARAA	11535898	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	25
B2EDARAE	MS35338-136	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	55
B2EDARAC	3.7DIN433NRST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	45
B2EDARAB	MS9060-213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	2	30	300
B2EDARAE	A12X15.5DIN7603G	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	5	5
B2EDARAF	MS9060-213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	30	300
B2EDARAP	11542473	0.00	0.00	0.00	.95	0.00	0.00	0.00	.95	0	0	0	190	0	0	0	256	1	1	1
B2EDAS	11542481	0.00	.95	0.00	0.00	0.00	.95	0.00	0.00	0	30	0	0	0	50	0	0	1	1	1
B2EDASAA	11535898	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	25
B2EDASAB	MS35338-136	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	55
B2EDASAC	3.7DIN433NRST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	45
B2EDASAD	MS9060-213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	30	300
B2EDASAE	11542482	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	1	1
B2EDAT	11542460	0.00	.95	0.00	0.00	0.00	.95	0.00	0.00	0	30	0	0	0	50	0	0	1	1	1
B2EDATAA	11535898	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	25
B2EDATAB	MS35338-136	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	55
B2EDATAC	3.7DIN433NRST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	45
B2EDATAD	MS9060-213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	30	300
B2EDATAE	11542485	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	1	1
B2EDAU	11542495	0.00	.95	0.00	0.00	0.00	.95	0.00	0.00	0	30	0	0	0	50	0	0	1	1	1
B2EDAUAA	MS9060-213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	30	300
B2EDAUAE	11542486	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	1	1
B2EDAV	11542499	0.00	.95	0.00	0.00	0.00	.95	0.00	0.00	0	30	0	0	0	50	0	0	1	1	1
B2EDAVAA	MS9360-213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	30	300
B2EDAVAB	11542508	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	1	1	1
B2F	11544716	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	*****
B2FA	11543699	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	*****
B2FABAAA	MSX8DIN933-8.8SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	18	90
B2FABAAB	B5DIN12783C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	4	5	385
B2FABAAE	11543641	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	2	5	30
B2FABAAG	11543639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	2	15	120
B2FABAAH	11543694	0.00	0.00	0.00	.98	0.00	0.00	0.00	.98	0	0	0	190	0	0	0	256	2	5	20
B2FABAAJ	M120IN936-5B2C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	2	10	60

Figure 4

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DATA BASE REPORT
SUPPLEMENTARY REPORT

FSC	PART NUMBER	NAME	ILNGTH	DATE	SEQ	GRNG	XISO
02AC1AF&9AA	11516930	CKT CD ASSY TUN	50	06/01/78	0	REC	N
02F01AG	11517002	CONV RCVR XMTR	62	06/01/78	0	SYS	N
02AG1AGAA	11517005	CONV RCVR SUBASSY	50	06/01/78	0	REC	N
02A01AG&B	11517109	MIXER XMTR	50	06/01/78	0	REC	N
02A01AH	11517113	MOD XMTR/REC	62	06/01/78	0	SYS	N
02AG1AH9A	11517116	KEYING SUBASSY XMTR	50	06/01/78	0	REC	N
02AC1AI	11517122	MON SECT PWR XMTR	62	06/01/78	0	SYS	N
02A01AIAA	11517125	MONITOR PWR XMTR	50	06/01/78	0	REC	N
02AC1AJ	11517170	CONTROL XMTR	62	06/01/78	0	SYS	N
02A61AJAA	11517133	CONT SUBASSY XMTR	50	06/01/78	0	REC	N
02A01AK	11517158	ENCL,ELEC EQPT	50	06/01/78	0	REC	N
02A01AL	11517178	COVER,FRAME	50	06/01/78	0	REC	N
02A01AM	41C0100-167	SCREW,SLTD PAN HD	50	06/01/78	0	NCI	N
02A01AN	41C0100-37	WASHER,SPRING	50	06/01/78	0	NCI	N
02A01AO	41C0100-160	SCREW,SLTD PAN HD	50	06/01/78	0	NCI	N
02AC1AP	41C0100-29	WASHER,SPRING	50	06/01/78	0	NCI	N
02A01AQ	41C0100-152	SCREW,SLTD PAN HD	50	06/01/78	0	NCI	N
02A01AR	11540723	SPACER,SCREW	50	06/01/78	0	NCI	N
02AG1AS	11540729	PLATE,CMPNT MTG	50	06/01/78	0	REC	N
02AC1AT	41C0100-10	WASHER,PLAIN	50	06/01/78	0	NCI	N
02A01AU	11540620-2	SCREW,CAPTIVE	50	06/01/78	0	NCI	N
02AC1AV	41C0100-54	SCREW,SLTD PAN HD	50	06/01/78	0	NCI	N
02A01AW	41C0100-A	WASHER,SPRING	50	06/01/78	0	NCI	N
02A01AX	3301-747	CABLE ASSEMBLY	74	06/01/78	0	SYS	N
02A01AY	3301-505	CABLE ASSEMBLY	74	06/01/78	0	SYS	N
02A01AZ	3301-737	CABLE ASSEMBLY	74	06/01/78	0	SYS	N
02AC19A	3301-504	CABLE ASSEMBLY	74	06/01/78	0	SYS	N
02A01B0	3300-734	CABLE ASSEMBLY	74	06/01/78	0	SYS	N
02AC19C	3300-733	CABLE ASSEMBLY	74	06/01/78	0	SYS	N
02A01BD	3300-749	CABLE ASSEMBLY	74	06/01/78	0	SYS	N
02AC19E	3301-503	CABLE ASSEMBLY	74	06/01/78	0	SYS	N
02A01BF	3301-139	LIMITER,RF	62	06/01/78	0	SYS	N
02AC19G	3300-738	CABLE ASSEMBLY	50	06/01/78	0	REC	N
02A01BH	1574504-5	DECAL,DANGER	50	06/01/78	0	NCI	N
02AF1BI	1574757-1	DECAL,DANGER	50	06/01/78	0	NCI	N
02A01BJ	11540778	CAP PROTECTIVE	50	06/01/78	0	NCI	N
02A02	11517350	RECEIVER,SURVL RDR	300	06/01/78	0	SYS	N
02AG2A9	11517369	FRAME,RECEIVER	74	06/01/78	0	SYS	N
02A02A9AA	11517307	FLTR A MINUS V	50	06/01/78	0	REC	N
02A02A9AB	11517273	PLATE MOUNTING	50	06/01/78	0	REC	N
02A02A9AC	11516478-2	SCREW,PANHEAD	50	06/01/78	0	NCI	N
02A02A9AD	3300-585	CAP,PROTECTIVE	50	06/01/78	0	NCI	N
02AC2A9AE	3301-1	CAP,PROTECTIVE	50	06/01/78	0	NCI	N
02A02A9AF	11516557	WASHER,SHLDR	50	06/01/78	0	NCI	N
02A02AC	11517409	OSCILLATOR,CONT XMT	62	06/01/78	0	SYS	N
02AC2ACAA	11517412	HOUSING OSC	50	06/01/78	0	MAE	N
02A02AC3AAA	11517426	MSG SUBASSY OSC	50	06/01/78	0	MAE	N
02A02ACAAAB	11517450	AMPLIFIER OSC	50	06/01/78	0	REC	N
02A02ACAAAC	11517452	CKT CD ASSY AMPL	50	06/01/78	0	REC	N
02A02ACAB	11519841	OSC CHANNEL 12	62	06/01/78	0	SYS	N

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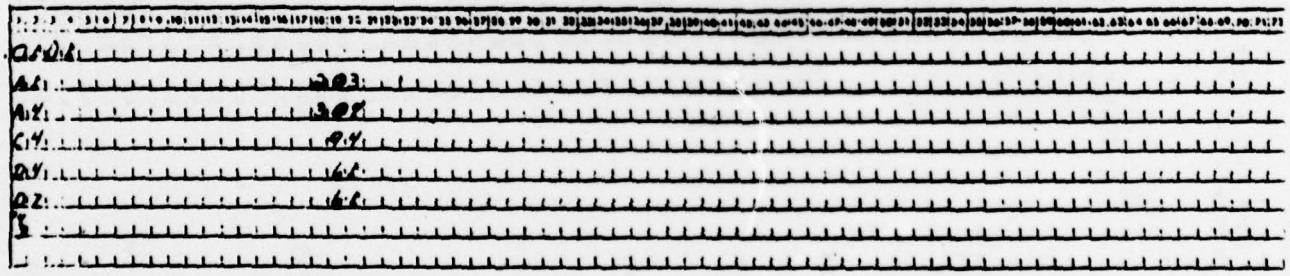
Figure 5

2.5.1 BUFTP Input Format

The data input for BUFTP describes the record type and the length in characters of a record contained on the LSAR tape. Each run must have a Tape Identifier indicating 1 for the A Tape and 2 for the H Tape run. The Print Switch determines if an unformatted dump of the data base is required. An entry of 0 indicates the dump is to be printed, 1 indicates suspend printing. A terminator (7/8/9) must occur between A Tape and H Tape data decks as BUFTP is run separately for each LSAR tape.

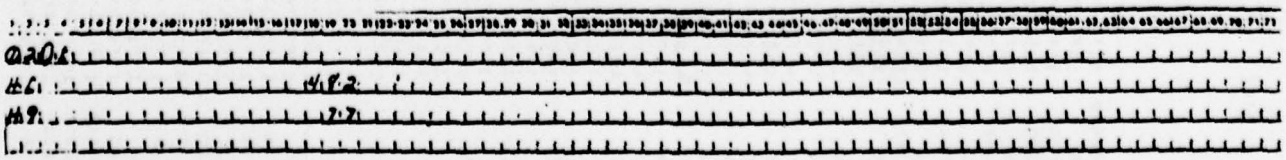
BUFTP A TAPE (LSAFU03M)

Card	Column	Variable	Format	Justification
1	1-2	Tape Identifier	I2	Right
	3-4	Print Switch	I2	Right
2-6	1-10	Record Type	A10	Left
	11-20	Record Length	I10	Right
7	1	Terminator(7/8/9)	Multi-punch	Left



BUFTP H TAPE (LSAPU08M)

Card	Column	Variable	Format	Justification
1	1-2	Tape Identifier	I2	Right
	3-4	Print Switch	I2	Right
2-6	1-10	Record Type	A10	Left
	11-20	Record Length	I10	Right
4	1	Terminator(7/8/9)	Multi-punch	Left



2.5.2 EXTAPE INPUT FORMAT

Data may be input from cards or from a work file. The Input Source will be 3 for data input from a work file or 5 for data input through data cards. If 3 is the input source, it will be followed by a terminator (7/8/9). No other data cards are required. If the input source is 5, data cards must be included describing the type of run and the data to be extracted from the LSAR tapes. EXTAPE may be run for any one or more FGC's or for the entire data base. The selected FGC's to be run are input on Card 2, separated by commas. If the word ALL is input, the entire data base will be run.

Each data set must begin with a record type indicator, i.e. H1, and end with a data set terminator, i.e. ENDH1. (For a list of the record types, and the names, starting positions, ending positions and formats of the data to be extracted from the LSAR tapes, see Table I).

EXTAPE Extract Data Format

Card	Column	Variable	Format	Justification
1	1	*Input Source*	I1	Right
2	1-10	FGC	A10	Left
3	1-2	Record Type	A2	Left
4-N	1-5	Blank		
	6-10	Start Position	I5	Right
	11-15	End Position	I5	Right
	21-30	Format	A10	Left
	41-50	Variable Name	A10	Left
N+1	1	Terminator	Multi-punch	Left

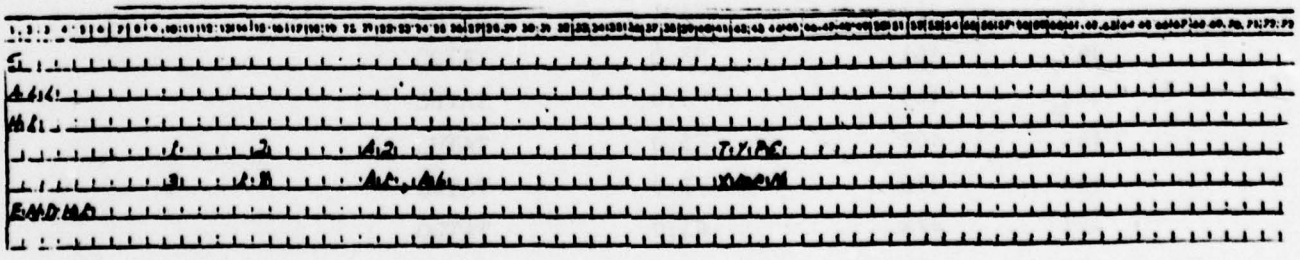


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TABLE I. EXTAPE Data Cards for ROLAND

Subsystem to be processed = ALL

H1

1	2	A2	Type
3	18	A10,A6	XMPN
58	76	A10,A9	XNME
256	259	F4.1	XLNTH
260	263	F4.1	WDTH
264	267	F4.1	HGHT
268	269	A2	LWHCD
270	275	F6.1	WTUP
276	277	A2	WTCD
295	299	F5.0	IQEI
304	309	A6	SMRC
310	310	A1	LSSE
311	312	F2.0	PLT
319	328	F10.2	UPRC
329	329	A1	UPM
412	416	F5.2	XMMR
435	437	F3.1	XMTDOC
438	440	F3.1	XMTDFC
441	443	F3.1	XMTDHC
444	446	F3.1	XMTDDC
447	449	F3.1	XMTDOO
450	452	F3.1	XMTDFO
453	455	F3.1	XMTDHO
456	458	F3.1	XMTDDO
459	461	F3.0	TATOC
462	464	F3.0	TATFC
465	467	F3.0	TATHC
468	470	F3.0	TATDC
471	473	F3.0	TATOO
474	476	F3.0	TATFO
477	479	F3.0	TATHO
480	482	F3.0	TATDO

ENDH1

EXTAPE Data Cards (continued)

H9

1	2	A2	TYPE
3	18	A10,A6	XMPN
19	29	A10,A1	FGC
69	73	F5.0	QPNHA
74	77	F4.0	XMFC

ENDH9

A1

1	2	A2	TYPE
3	13	A10,A1	FGC
81	99	A10,A9	XNME
130	145	A10,A6	XMPN

ENDA1

C4

1	2	A2	TYPE
3	13	A10,A1	FGC
14	20	A7	TASK
37	41	F5.2	TFR
43	47	F5.2	XMET(1)
48	52	F5.2	XMET(1)
53	57	F5.2	XMET(1)
59	66	A8	SSC
70	74	F5.2	XMMR(1)
75	79	F5.2	XMHR(2)
80	84	F5.2	XMHR(3)

ENDC4

D7

1	2	A2	TYPE
3	13	A10,A1	FGC

EXTAPE Data Cards (continued)

D7

21	36	A10,A6	SMPN
37	37	A1	XICC
38	56	A10,A9	SNME
57	60	F4.0	ISQPT

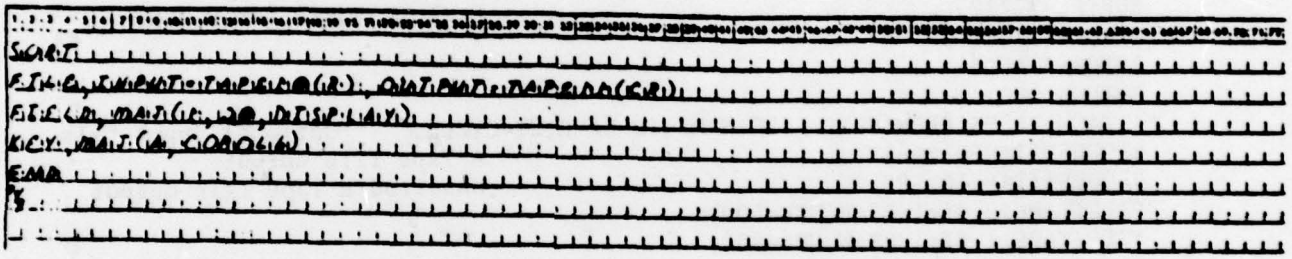
ENDD7

2.5.3 SORTMRG INPUT FORMAT

The parts number file, Tape 10, is sorted using the twenty character FGC as the key and copied to Tape 11. SORTMRG data input cards are as follows starting in column 1.

Card

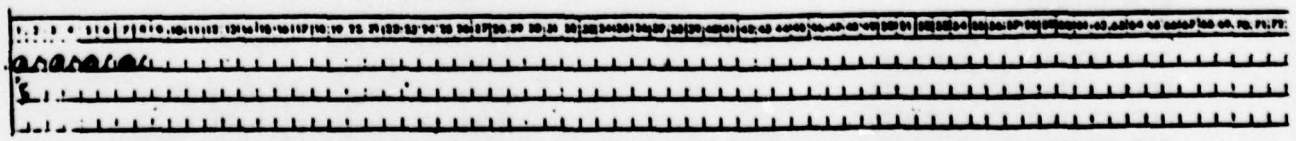
```
1     SORT
2     FILE,INPUT=TAPE10(R),OUTPUT=TAPE11(CR)
3     FIELD,MAJ(1,20,DISPLAY)
4     KEY,MAJ(A,COBOL6)
5     END
6     TERMINATOR(7/8/9)
```



2.5.4 MRGFLS INPUT FORMAT

The single data card required for MRGFLS uses four I2 words, right justified, to exercise the option of printing any one or more of the four data base reports. 01 indicates print and 00 indicates suspend printing. The positions are as follows:

Card	Column	Report
1	1-2	Control File Report
	3-4	Parts Number Report, Part 1
	5-6	Parts Number Report, Part 2
	7-8	Supplementary Report
2	1	Terminator(7/8/9)



2.6 Data Base Build Job Control Language

The job control language in the Data Base build is as follows:

```
                                                    COMMENTS
LIMIT(4000)
ATTACH,OLD,PRBATEMP,ID=PRWALT,CY=200.
REQUEST(TAPE12,HY)                  SCRATCH         New 7 Track A Tape
COPYBF(OLD,BUF)
COPYBF(OLD,EX)
COPYBF(OLD,MRG)
REQUEST(TAPE20,PE,S,EB,E)           LIB. NO.        9 Track LSAR A Tape
BUF(PL=77777)                                       Execute BUFTP for A Tape
UNLOAD(TAPE20)
UNLOAD(TAPE12)
REQUEST(TAPE12,HY)                  SCRATCH         New 7 Track H Tape
REQUEST(TAPE20,PE,S,EB,E)           LIB. NO.        9 track LSAR H Tape
BUF(PL=77777)                                       Execute BUFTP for H Tape
RETURN(TAPE20)
RETURN(TAPE6)
RETURN(BUF)
*ATTACH,TAPE3,PERMANENT FILE NAME,ID=NAME,CY=CYCLE.     Optional Input File
REQUEST(TAPE9,*PF)                                  A Tape file output
REQUEST(TAPE10,*PF)                                 Unsorted H Tape file output
FILE(TAPE10,BT=I,RT=W,MRL=500)
FILE(TAPE11,BT=I,RT=W,MRL=500)
LDSET(FILES=TAPE10)
EX(PL=77777)                                        Execute EXTAPE
RETURN(TAPE1)                                       Input of A Tape created by BUF
RETURN(TAPE2)                                       Input of H Tape created by BUF
RETURN(TAPE3)                                       Optional Input File
RETURN(EX)
LDSET(FILES=TAPE10,TAPE11)                          Tape 10 is sorted onto Tape 11
SORTMRG                                             Execute SORTMRG
RETURN(TAPE10)
REQUEST(TAPE20,*PF)
LDSET(FILES=TAPE11)                                 Sorted H Tape
MRG(PL=77777)                                       Execute MRGFLS
ATTACH,A,PRLSAR,ID=PRTACRAC,CY=3.                   A = Old ROLOG Data Base File
PURGE(A)
RETURN(A)
CATALOG,TAPE20,PRLSAR,ID=PRTACRAC,CY=003.           New ROLOG Data Base File
EXIT(U)
RETURN(TAPE11)                                      Sorted H Tape file
RETURN(TAPE9)                                       A Tape file
RETURN(MRG)
REWIND,TAPE31,TAPE32,TAPE33,TAPE34.                 Tabular Report Tapes
COPYCF(TAPE31,OUTPUT)                               Control File
COPYCF(TAPE32,OUTPUT)                               Part No. Report, Part 1
COPYCF(TAPE33,OUTPUT)                               Part No. Report, Part 2
COPYCF(TAPE34,OUTPUT)                               Supplementary Report
EXIT.
```

Data Build Job Control Language (continued)

```
DMP(1000000)
COPYCF(TAPE31,OUTPUT)
COPYCF(TAPE32,OUTPUT)
COPYCF(TAPE33,OUTPUT)
COPYCF(TAPE34,OUTPUT)
7/8/9
BUFTP DATA                                  A Tape
7/8/9
BUFTP DATA                                  H Tape
7/8/9
EXTAPE DATA
7/8/9
SORTMRG DATA
7/8/9
MRGFLS DATA
7/8/9
6/7/8/9
```

* Eliminate the ATTACH of Tape 3, the optional input file, from the job control stream if data for EXTAPE is being put in through cards

3.0 ROLOG DATA BASE UPDATE

To permit correction of data errors detected in the LSAR data, and to allow for testing alternatives, a means of updating the ROLOG data base is required. Two distinct computer routines and the CDC supplied software routine, SORTMRG, run as one program comprise the ROLOG data base update. A flow diagram of the Update Program is shown in Figure 6 and is described in the following paragraphs.

3.1 Main Update (MAINUD)

The MAINUD routine utilizes input data cards to build two transaction files with which to update the data base. The file assignments referenced in Update job control language, paragraph 3.5, are as follows:

Tape 5	Card reader
Tape 6	Printer
Tape 14	DIM transaction file - Output
Tape 15	RVRM transaction file - Output

Tape 14 contains Delete, Insert or Modify transaction codes as they will only be performed against a single FGC record in the data base. Tape 15 contains Replace-Value and Replace-Multiply transaction codes, as this data is used to update all records in the data base. MAINUD prints a transaction file and a transaction listing with any associated error messages.

3.2 Sort of DIM file (SORTMRG)

The CDC supplied program SORTMRG, sorts the DIM transaction file created by MAINUD into FGC order. Data cards are input to describe the sort which uses the FGC as the primary key and the transaction code as the secondary key. The sorted transaction file produced by SORTMRG is Tape 16.

3.3 Update Data Base (UPDB)

UPDB utilizes the ROLOG Date Base File as the master file and the two transaction files created by MAINUD as secondary files to produce the updated data base. The transaction files are bumped against the master file to delete, insert, or modify individual records and to replace data in all data base records. The UPDB file assignments referenced in Update job control language, paragraph 3.5 are as follows:

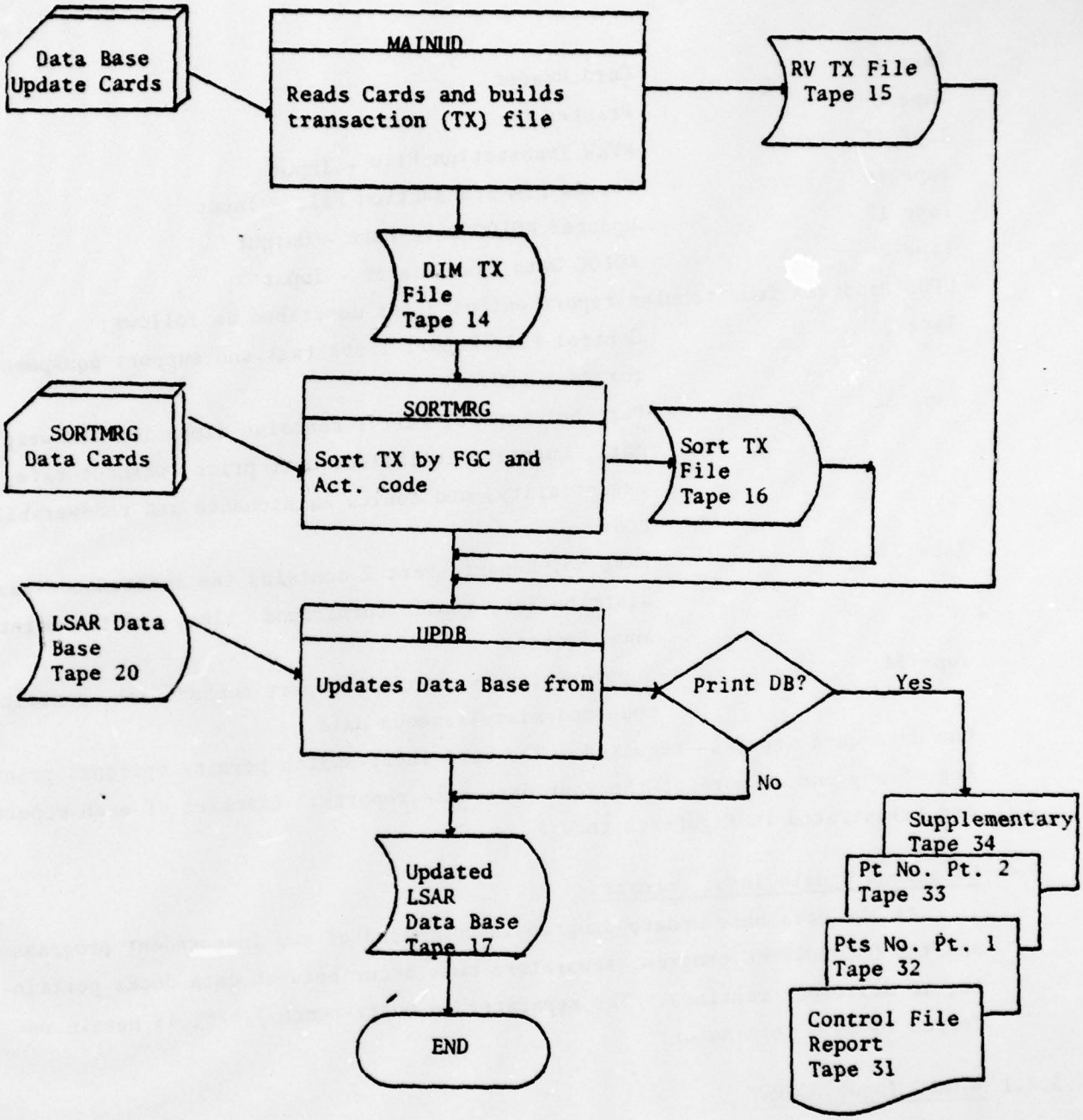


Figure 6. Data Base Update Flow Diagram

Tape 5	Card Reader
Tape 6	Printer
Tape 15	RVRM Transaction File - Input
Tape 16	Sorted DIM Transaction File - Input
Tape 17	Updated ROLOG Data Base - Output
Tape 20	ROLOG Data Base Master - Input

UPDB Produces four tabular report output files described as follows:

Tape 31	Control File Report lists task and support equipment for each FGC.
Tape 32	Part No. Report, Part 1 contains dimension and weight data, quantity installed, unit price, washout rate, essentiality, and source maintenance and recoverability code.
Tape 33	Part No. Report, Part 2 contains the maintenance task distribution, repair turnaround time, and the maintenance factor.
Tape 34	Supplementary Report lists part number name, generic code and miscellaneous data.

One data card input is required. The card input switch permits optional printing of any one or more of the four data base reports. Examples of each report are illustrated in Figures 2 thru 5.

3.4 Data Base Update Input Formats

As the data base update program is comprised of two independent programs and the CDC SORTMRG program, separators must occur between data decks pertaining to different routines. The separater, a multi-punch 7/8/9, is herein referred to as a terminator.

3.4.1 MAINUD Input FORMAT

Data cards are used in MAINUD to build the DIM and RV-RM transaction files. The data cards contain the transaction code, the FGC where needed, field numbers of the values to be changed, the new value and a field code as applicable.

Transaction keys used in MAINUD are as follows:

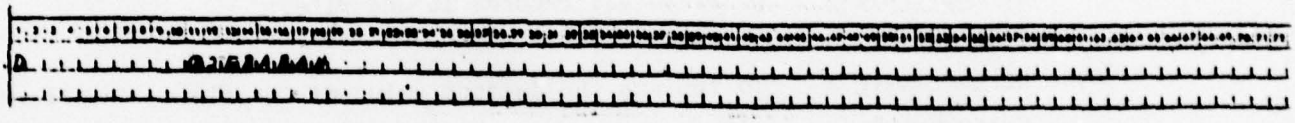
D	DELETE	To delete an entire record (FGC)
I	INSERT	To insert a new record into the file
M	MODIFY	To change value of a field on an existing record. Currently, this key can only be used on fields 2 through 46.
RM	REPLACE VALUE BY MULTIPLICATION	To change the value in a field by applying a fixed multiplier to all records in the file.
RV	REPLACE WITH A FIXED VALUE	To replace the current value of the field, on all records, with a fixed value.

If the transaction code is I and tasks and equipment are to be inserted, a card with a field code in column one must immediately precede each task and/or equipment. The field code for a task is T and for equipment is E. The RM or RV keys allow the user the option of replacing all values in the field with a fixed value or of replacing the value only if it is a specific value (ie: replacing only blank filled fields with a default value). Field location of each data base variable is shown in Table II. Data cards for MAINUD are prepared as follows:

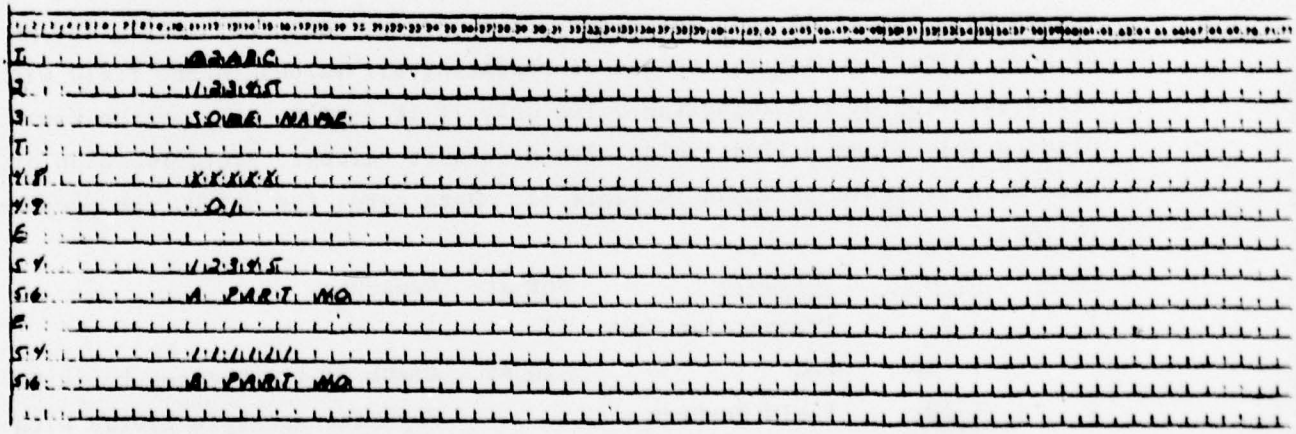
Card	Column	Variable	Format	Remarks
1	1-2	Transaction Key	A2	
	11-30	FGC	A10,A1	Blank if transaction key = RM or RV
2	1-10	Field Numbers		Separate multiple fields with commas
	11-80	Value		Separate values with commas. If transaction key = RM or RV, the first value is the new value or multiplier and the second, if present, is the only value to be replaced (limit one field per card for RM or RV)
N	1-10	Field Code	A1	T if preceding task input and E if preceding equipment input. New card for each task and equipment being inserted.
N+1	1	Terminator (7/8/9)		

NOTE: If transaction code = D only card 1 is required. Card N is required only if transaction code = I and task or equipment are being inserted. The only output of MAINUD is a transaction file and a transaction listing with any associated error messages.

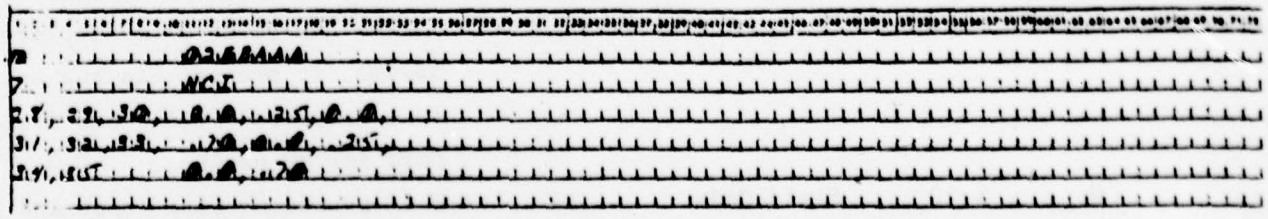
DELETE



INSERT



MODIFY



REPLACE VALUE - REPLACE MULTIPLY

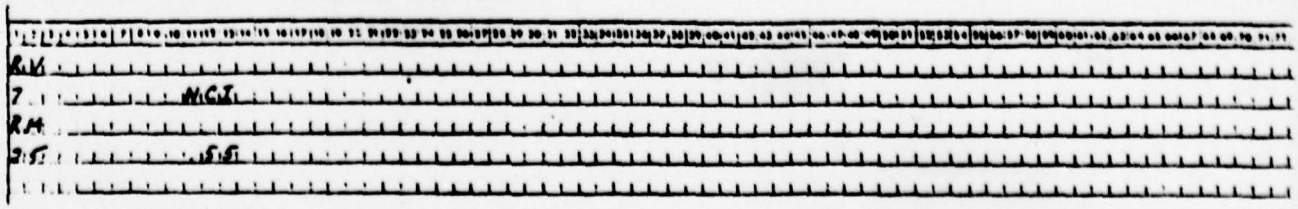


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TABLE II Master Data Base Layout

Field	Variable Name	Word Number	Number of Words	Format	Source
1	FGC	1,2	2	A10,A1	A1 or H9
2	XMPN	3,4	2	A10,A6	A1 or H9
3	XNME	5,6	2	A10,A9	A1 or H9
4	ILNGTH	7	1	I10	Calc.
5	DATE	8	1	A10	Calc.
6	FILLER	9	1		
7	GNRC	10	1	A5	Card
8	XISQ	11	1	A1	Card
9	H-B IDENT.	12	1	A3	Calc.
10	FILLER	13	1		
11	FILLER	14	1		
12	FILLER	15	1		
13	FILLER	16	1		
14	XLNTH	17	1	F4.1	H1
15	WDTH	18	1	F4.1	H1
16	HGHT	19	1	F4.1	H1
17	VOLP	20	1	F5.2	Calc.
18	WTUP	21	1	F6.2	H1
19	WTP	22	1	F6.2	Calc.
20	QEI	23	1	F5.0	H1
21	SMRC	24	1	A6	H1
22	ESSE	25	1	F2.0	H1
23	RPS	26	1	A1	H1
24	PLT	27	1	F3.0	H1
25	UPRC	28	1	F10.2	H1
26	UPM	29	1	A1	H1
27	XMMR	30	1	F5.2	H1
28	XMTD(1,1)	31	1	F3.2	H1
29	XMTD(2,1)	32	1	F3.2	H1
30	XMTD(3,1)	33	1	F3.2	H1
31	XMTD(4,1)	34	1	F3.2	H1

TABLE II Master Data Base Layout (Continued)

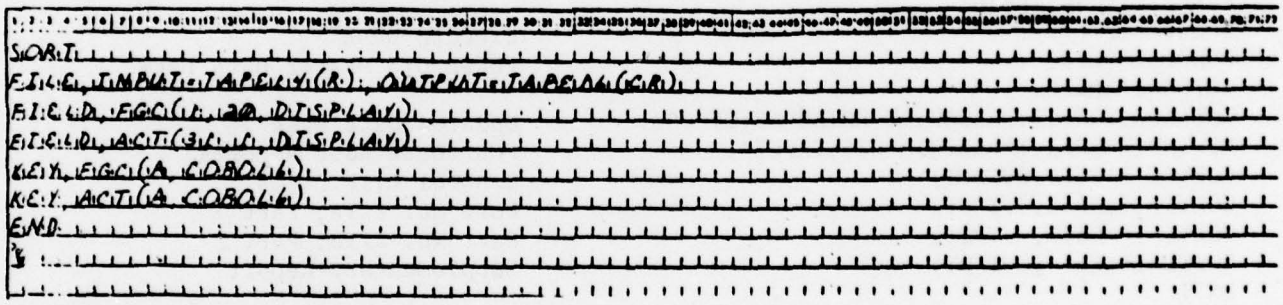
Field	Variable Name	Word Number	Number of Words	Format	Source
32	XMTD(1,2)	35	1	F3.2	H1
33	XMTD(2,2)	36	1	F3.2	H1
34	XMTD(3,2)	37	1	F3.2	H1
35	XMTD(4,2)	38	1	F3.2	H1
36	TAT(1,1)	39	1	F4.0	H1
37	TAT(2,1)	40	1	F4.0	H1
38	TAT(3,1)	41	1	F4.0	H1
39	TAT(4,1)	42	1	F4.0	H1
40	TAT(1,2)	43	1	F4.0	H1
41	TAT(2,2)	44	1	F4.0	H1
42	TAT(3,2)	45	1	F4.0	H1
43	TAT(4,2)	46	1	F4.0	H1
44	QPNHA	47	1	F5.0	H9
45	XMFC	48	1	F4.0	H9
46	XMFAC	49	1	F4.0	Calc.
47	ITASK	50	1	I10	Calc.
48	TASK	51	1	A7	C4
49	TFR	52	1	F5.2	C4
50	XMET	53	1	F5.2	C4
51	SSC	54	1	A8	C4
52	XMHR	55	1	F6.2	C4
53	IEQUIP	56	1	I10	Calc.
54	SMPN	57,58	2	A10,A6	D7
55	XICC	59	1	A1	D7
56	SNMH	60,61	2	A10,A9	D7
57	SQPT	62	1	F5.0	D7

3.4.2 SORTMRG INPUT FORMAT

The primary sort key is the twenty character FGC. The secondary sort key is the one character transaction code. SORTMRG data input cards are as follows starting in column 1.

Card

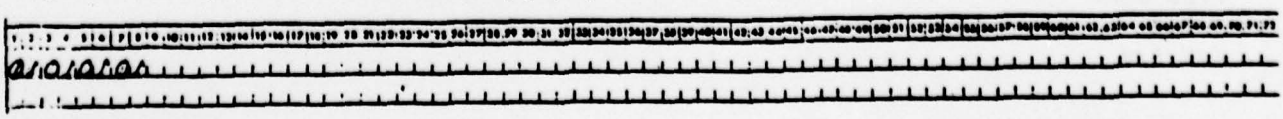
```
1    SORT
2    FILE,INPUT=TAPE14(R),OUTPUT=TAPE16(CR)
3    FIELD,FGC(1,20,DISPLAY)
4    FIELD,ACT(31,1,DISPLAY)
5    KEY,FGC(A,COBOL6)
6    KEY,ACT(A,COBOL6)
7    END
8    TERMINATOR(7/8/9)
```



3.4.3 UPDB INPUT FORMAT

The single data card required for UPDB uses four I2 words, right justified, to exercise the option of printing any one or more of the four data base reports. 01 indicates print and 00 indicates suspend printing. The positions are as follows.

Card	Column	Report
1	1-2	Control File Report
	3-4	Parts Number Report, Part 1
	5-6	Parts number Report, Part 2
	7-8	Supplementary Report
2	1	Terminator(7/8/9)



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3.5 Data Base Update Job Control Language

```
LIMIT(4000)
ATTACH(OBIN,PRBATEMP,ID=PRWALT,CY=200)
COPYBF(OBIN,BUFTP)
COPYBF(OBIN,EX)
COPYBF(OBIN,MRGFLS)
COPYBF(OBIN,MAINUD)
COPYBF(OBIN,UPDB)
FILE(TAPE14,BT=1,RT=W,MRL=1000)                    Unsorted DIM transaction file
FILE(TAPE16,BT=1,RT=W,MRL=1000)
LDSET(FILES=TAPE14)
MAINUD(PL=77777)                                   Execute MAINUD
REWIND(TAPE14)
LDSET(FILES=TAPE14/TAPE16)
SORTMRG                                            Execute SORTMRG
REWIND,TAPE16.                                     SORTED DIM transaction file
REQUEST(TAPE17,*PF)
ATTACH(TAPE20,PRLSAR,ID=PRTACRAC,CY-003.           Old Data Base File
LDSET(FILES=TAPE16)
UPDB(PL=77777)                                     Execute UPDB
PURGE,TAPE20.                                      PURGE Old Master Data Base
RETURN,TAPE20.
CATALOG,TAPE17,PRLSAR,ID=PRTACRAC,CY=003.          Updated Data Base
REWIND(TAPE31,TAPE32,TAPE33,TAPE34)                Four Data Base Reports
COPYCY(TAPE31,OUTPUT)                              Control File Files
COPYCY(TAPE32,OUTPUT)                              Part No. File, Part 1
COPYCF(TAPE33,OUTPUT)                              Part No. File, Part 2
COPYCF(TAPE34,OUTPUT)                              Supplementary Report
EXIT.
DMP(100000)
COPYCF(TAPE31,OUTPUT)
COPYCF(TAPE32,OUTPUT)
COPYCF(TAPE33,OUTPUT)
COPYCF(TAPE34,OUTPUT)
7/8/9
MAINUD DATA
7/8/9
SORT
FILE,INPUT=TAPE14(R),OUTPUT=TAPE16(CR)
FIELD,FGC(1,20,DISPLAY)
FIELD,ACT(31,1,DISPLAY)
KEY,FGC(A,COBOL6)
KEY,ACT(A,COBOL6)
END
7/8/9
UPDB DATA
7/8/9
6/7/8/9
```

4.0 ROLAND LOGISTICS PROGRAM

The ROLOG program utilizes the ROLOG data base and data input to perform logistic support effectiveness calculations on the ROLAND weapon system to evaluate cost and effectiveness of that system. It simulates a given logistic scenario and analyzes the problems of sparing, stocking, availability and maintenance. The results of these calculations are printed in tabular reports or written to work files for further manipulation by the SEU program and the GRAPH routine. Refer to Figure 7 for a view of the ROLOG flow diagram. The tape assignments used in ROLOG are as follows:

Tape 1	OAV - Output
Tape 2	Maintenance Manhours by FGC - Output
Tape 3	Maintenance Manhours by Skill Code - Output
Tape 4	Plots File - Output
Tape 5	Card Reader
Tape 6	Printer
Tape 7	Support Equipment File (unsorted) - Output
Tape 8	Provisioning - Output
Tape 9	New Data Base Spinoff - Output - Input
Tape 10	Support Equipment File (sorted) - Output
Tape 15	Logistic Life Cycle Cost File - Output
Tape 16	Provisioning Item File (unsorted) - Output
Tape 17	Provisioning Item File (sorted) - Output
Tape 20	ROLOG Data Base - Input

4.1 ROLOG Reports

ROLOG produces five tabular reports described as follows:

Operational Availability A Output No. 1

Output number 1 reflects the fraction of total time that the system is operating or is ready for immediate operation on demand. One line is used for each subsystem to permit the user to determine those subsystems having the major impact on the overall system availability. For the fire unit (FU) the last two lines reflect the fire unit availability and the ROLAND availability. For other systems (missile, FMTS, OPTE, etc.) the last line gives the availability of the system being analyzed. The columns of the output give the following data:

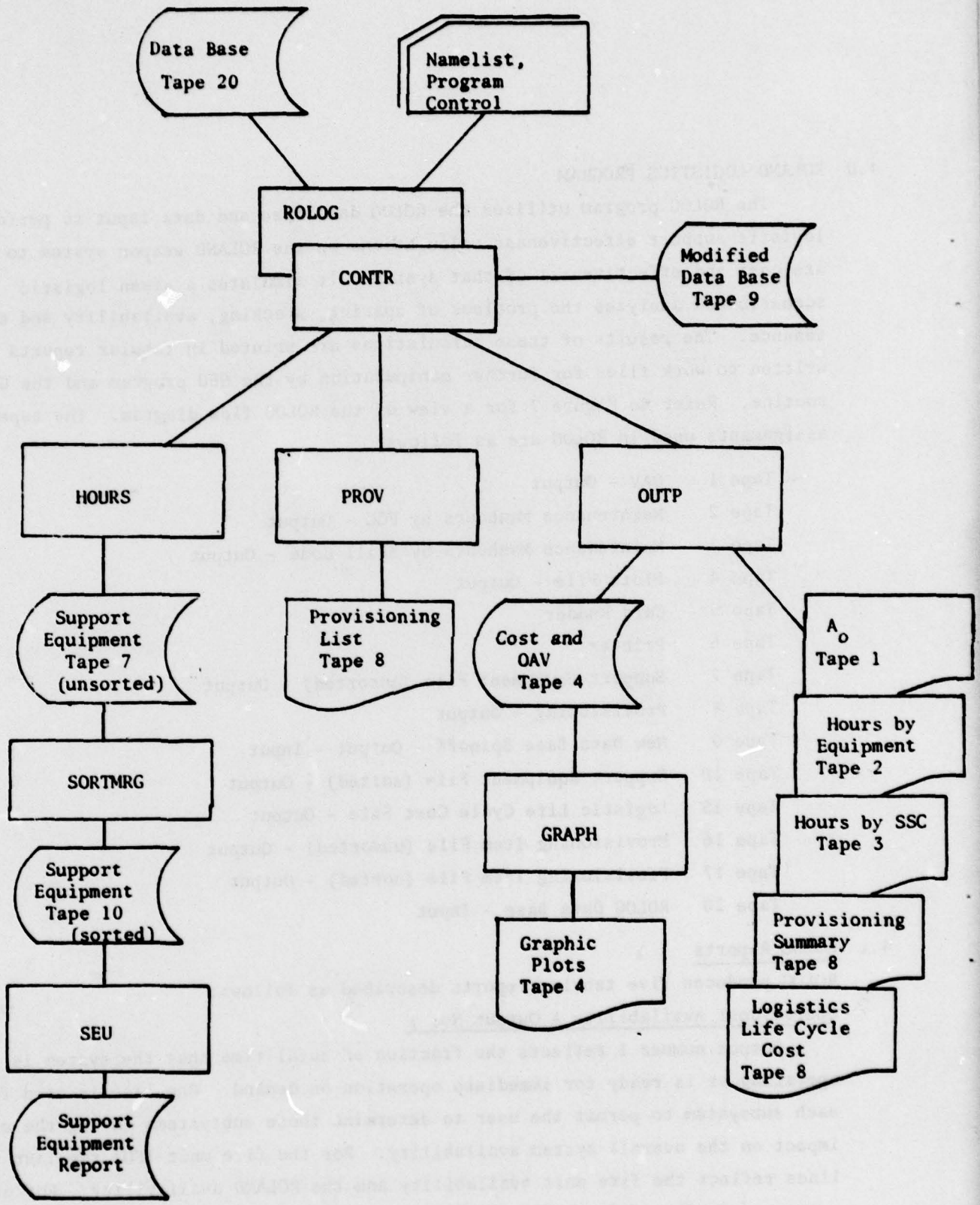

Figure 7. ROLOG Flow Diagram

Column 1 Functional Group code of system/subsystem

2 Nomenclature of system/subsystem

3 Availability of CONUS systems

4 Availability of Overseas deployed systems

5 Weighted worldwide availability - which is the total downtime, maintenance and logistic, divided by total time.

6 Inherent worldwide availability which is the downtime designed into the system and is a function of mean time between failure and the mean time to repair.

7 Achieved worldwide availability adds to the inherent availability the downtime associated with preventive maintenance action.

A sample of output number 1 is shown in Figure 8.

Annual Maintenance Manhours by Equipment Output No. 2

Output number 2 is a summation of the active maintenance manhours for one year for one maintenance point of each level. One line is devoted to each subsystem with the last line containing the summation at the system level. The column assignments are as follows:

Column 1 Functional group code of system/subsystem

2 Nomenclature of system/subsystem

3 Annual manhours for one Orgn in CONUS

4 Annual manhours for one DSU in CONUS

5 Annual manhours for one GSU in CONUS

6 Annual manhours for one Depot in CONUS

7 Annual manhours for one Orgn Overseas

8 Annual manhours for one DSU Overseas

9 Annual manhours for one GSU Overseas

10 Annual manhours for one Depot Overseas

A sample of output number 2 is shown in Figure 9.

Annual Maintenance Manhours by SSC, Output No. 3

A separate output number 3 is printed for each system or subsystem being analyzed and reflects the annual active maintenance manhours required by skill specialty code, at one of each level maintenance point. As currently coded, each skill specialty code authorized by the MTEL is input and the hours of

active maintenance time required of each is summed. The column assignments for output number 3 are as follows:

Column 1 Skill specialty code (SSC)
2 Manhours for one Orgn in CONUS
3 Manhours for one DSU in CONUS
4 Manhours for one GSU in CONUS
5 Manhours for one Depot in CONUS
6 Manhours for one Orgn Overseas
7 Manhours for one DSU Overseas
8 Manhours for one GSU Overseas
9 Manhours for one Depot Overseas

A sample of output number 3 is shown in Figure 10.

Spares Provisioning List, Output No. 4

The Spares Provisioning List uses two lines for each part computed for stockage by ROLOG. The parts are sorted in generation breakdown sequence (FGC) to permit costs to be allocated against the specific subsystems. The total quantity of parts required for all applications is shown each time the part appears in a next higher assembly but the cost shown reflects only that portion of the cost allocated against the specific application. The column assignments are as follows:

Column 1 Functional group code
2 line 1 nomenclature
line 2 part number
3 Generic code
4 International Interchangeability flag
5 Repairable status (repair or throwaway)
6 Essentiality code
7 Quantity per next higher assembly
8 line 1 Quantity per Orgn in CONUS
line 2 Quantity per Orgn Overseas
9 line 1 Cost per Orgn in CONUS
line 2 Cost per Orgn Overseas
10 line 1 Quantity per DSU in CONUS
line 2 Quantity per DSU Overseas

Column 11 line 1 Cost per DSU in CONUS
line 2 Cost per DSU Overseas
12 line 1 Quantity per GSU in CONUS
line 2 Quantity per GSU Overseas
13 line 1 Cost per GSU in CONUS
line 2 Cost per GSU Overseas
14 line 1 Quantity per Depot in CONUS
line 2 Quantity per Depot Overseas
15 line 1 Cost per Depot in CONUS
line 2 Cost per Depot Overseas
16 Annual replenishment quantity
17 Annual replenishment cost

A sample spares provisioning list is shown in Figure 11.

Spares Provisioning Summary, Ouput No. 5

The Summary Spares Provisioning Report sums the cost, weight, volume and number of line items reflected on the provisioning list. The first four elements of the summary are:

Cost
Weight
Volume
Number of line items

Each of these elements require two lines of output; the top line contains CONUS values and the second reflects the values for overseas deployment. Column assignments are:

Column 1 FGC
2 Element (cost, weight, etc.)
3 Values for one organization
4 Values for one DSU
5 Values for one GSU
6 Values for one Depot

The last two lines of output data reflect the replacement of washouts required during the demand development period (a part of initial provisioning) and the recurring annual replenishments required throughout the remainder of the life

cycle. Column assignments for these two lines are:

Column 1 FGC

2 Element (initial washouts, annual replenishments)

3 Cost

4 Weight

5 Volume

6 Number of line items

A sample of the provisioning summary is shown in Figure 12.

Logistic Life Cycle Cost Report No. 5

This report segregates cost by investment, and by operation and support. Investment costs are broken down into initial spares and repair parts, 1st destination transportation costs, 2nd destination transportation costs, the cost of initially entering an item in the Federal supply system and the cost of maintaining an item in the supply system. Operating and support costs are ten year projected costs broken down into replenishment spares costs, transportation of replenishment spares, hands on maintenance labor costs, costs of maintaining an item in the supply system, and depot labor costs. The last two lines of the report contain the Budgetary Funding Profile which depicts lead times and appropriations for replenishments. A sample of the Life Cycle Cost report is shown in Figure 13.

In addition, ROLOG reports erroneous data in a record by printing out the FGC and any associated error messages, ie. an incorrect skill specialty code.

4.2 ROLOG Produced Files

ROLOG produces two work files for use with the Support Equipment Program (SEU) and the Graphics Program (GRAPH). Also, a new data base may be produced by ROLOG at user discretion.

SUPPORT EQUIPMENT UTILIZATION File

The SEU file, Tape 7, contains data evolved from ROLOG which gives the annual support equipment usage based upon mean elapsed time for the maintenance task in question. Tape 7 is sorted by the CDC supplied routine, SORTMRG, into FGC and part number order. The sorted SEU file, Tape 10, is catalogued for later use by the SEU program, a stand alone program responsible for the support equipment report. Refer to paragraph 5.0 for further information on the SEU program. A sample SEU report is shown in Figure 15.

OUTPUT NO.1 OPERATIONAL AVAILABILITY 09/05/70

FUNCTIONAL GROUP CODE	NAME	CONUS	OVERSEAS	WORLDWIDE			
				OPERATIONAL	INHERENT	ACHIEVED	MEAN LOG T.
02	FIRE UNIT MODULE	1.000	.997	.997	.993	.997	8.6..
02A	SURVEILLANCE RADAR	1.000	.984	.984	.997	.997	13.433
02B	IFF INTERROGATOR SET	1.000	.999	.999	1.000	1.00.	1.554
02C	TRACK RADAR	1.000	.973	.973	.998	.99.	14.815
02D	ELECTRO-OPTICAL GR	1.000	.998	.998	.999	.999	7.892
02E	COMMAND SYSTEM	1.000	.990	.990	1.000	1.00.	15.777
02F	HULL ASSEMBLY	1.000	.980	.980	.985	.983	9.771
02G	TURRET ASSY	1.000	.999	.999	.999	.999	23.397
02H	DATA PROCESSING SYS	1.000	.995	.995	1.000	1.00.	28.531
02I	CONTROLS & DISPLAYS	1.000	.999	.999	1.000	1.00.	9.599
02J	COMMUNICATIONS SYST	1.000	.998	.998	.998	.998	19.511
02K	POWER SYS-FU ELECT	1.000	.974	.974	.998	.998	9.83v
02	FIRE UNIT MODULE	1.000	.862	.862	.957	.936	14.122
	POLARP	.900	.9 [illegible]	.845			

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Figure 8

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OUTPUT NO.2 ANNUAL MAINTENANCE MANHOURS BY SUBSYSTEM 09/05/78

FSC	NOMENCLATURE	CONUS				OVERSEAS			
		ORGN	DSU	GSU	DEPOT	ORGN	DSU	GSU	DEPOT
02	FIRE UNIT MODULE	0.0	0.0	0.0	0.0	8834.3	50[illegible]6.6	0.0	0.0
02A	SURVEILLANCE RADAR	0.0	0.0	0.0	0.0	682.0	3248.9	0.0	0.0
02B	IFF INTERROGATOR SET	0.0	0.0	0.0	0.0	64.1	214.6	0.0	0.0
02C	TRACK RADAR	0.0	0.0	0.0	0.0	2158.3	2476.2	0.0	0.0
02D	ELECTRO-OPTICAL GP	0.0	0.0	0.0	0.0	230.9	527.0	0.0	0.0
02E	COMMAND SYSTEM	0.0	0.0	0.0	0.0	70.1	392.2	0.0	0.0
02F	HULL ASSEMBLY	0.0	0.0	0.0	0.0	2272.9	6234.6	0.0	0.0
02G	TURRET ASSY	0.0	0.0	0.0	0.0	1179.2	1461.4	0.0	0.0
02H	DATA PROCESSING SYS	0.0	0.0	0.0	0.0	183.0	956.3	0.0	0.0
02I	CONTROLS & DISPLAYS	0.0	0.0	0.0	0.0	28.5	91.3	0.0	0.0
02J	COMMUNICATIONS SYST	0.0	0.0	0.0	0.0	3516.9	0.0	0.0	0.0
02K	POWER SYS-EU ELECT	0.0	0.0	0.0	0.0	4664.4	339.4	0.0	0.0
02	FIRE UNIT MODULE	0.0	0.0	0.0	0.0	23884.5	21637.3	0.0	0.0

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Figure 9

OUTPUT NO.3 ANNUAL MAINTENANCE MANHOURS BY SKILL SPECIALTY CODE 09/23/78

SYSTEM 02 FIRE UNIT MODULE

SKILL CODE	CONUS				OVERSEAS			
	1 ORGN	1 DSU	1 GSU	DEPOT	1 ORGN	1 DSU	1 GSU	DEPOT
B16?20	.1	0.0	0.0	0.0	.1	0.0	0.0	0.0
I16?20	6712.1	0.0	0.0	0.0	6712.1	0.0	0.0	0.0
A16?20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B24?20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I24?20	1415.6	0.0	0.0	0.0	1415.6	0.0	0.0	0.0
A24?20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A24?40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I24?40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I26?20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A26?40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B27?20	0.0	26.2	0.0	0.0	0.0	26.2	0.0	0.0
I27?20	0.0	2059.5	0.0	0.0	0.0	2059.5	0.0	0.0
A27?20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A27?40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I27?40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B52B10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B52B20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B52C10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I52C20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B52D10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I52D20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B62B20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B63B10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B27?10	0.0	1163.1	0.0	0.0	0.0	1163.1	0.0	0.0
A27?4Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I27?2Y	0.0	3336.0	0.0	0.0	0.0	3336.0	0.0	0.0
B27?2Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A27?4X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I27?2X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B27?2X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ERPCDE	1388.4	1758.2	0.0	0.0	1388.4	1758.2	0.0	0.0

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Figure 10

OUTPUT NO.4 SPARES PROVISIONING LIST 09/15/78

FSC	NOMENCLATURE / PART NO.	GNFC CODE	ISQ	PPS	ESC	IQP	NHA	INITIAL SPARES STOCKAGE FOR ONE ORGN,DSU,GSU,DEPOT ORGN QTY	ORGN COST	DSU QTY	DSU COST	GSU QTY	GSU COST	DEPOT QTY	DEPOT COST	REPLENISHMENT QTY	REPLENISHMENT COST
02FDAXAKAH	NUT MS01N285-882C	NCI	N	T	7	2		1.0 1.0	.02 .02	3.0 3.0	.06 .06	0.0 0.0	0.00 0.00	272.0 0.0	5.83 0.00	473.00	283.80
02FDAXAKAJ	HANDL 11546 [illegible]	SYS	N	T	3	2		0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	5.0 0.0	100.00 0.00	7.00	280.00
02FDAXAKAL	SCREW M4X12DIN933-8.8B	NCI	N	T	3	2		0.0 0.0	0.00 0.00	2.0 2.0	.01 .01	0.0 0.0	0.00 0.00	117.0 0.0	.78 0.00	283.00	16.24
02FDAXAKAN	WASHER B6DIN 2783C	NCI	N	T	3	2		0.0 0.0	0.00 0.00	1.0 1.0	.00 .00	0.0 0.0	0.00 0.00	29.0 0.0	.19 0.00	51.00	1.53
02FDAXAKAP	PIN 11552[illegible]	NCI	N	T	7	2		0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	6.0 0.0	606.00 0.00	8.00	808.00
02FDAXAKAV	BUSHING 11552[illegible]	NCI	N	T	1	2		0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	5.0 0.0	1105.00 0.00	5.00	1105.00
02FDAXAKAW	COLLAR HLHA652-06	NCI	N	T	3	4		0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	13.0 0.0	45.50 0.00	17.00	59.50
02FDAXAKAY	BUSHING 11546 52	NCI	N	T	3	2		0.0 0.0	0.00 0.00	1.0 1.0	37.50 37.50	0.0 0.0	0.00 0.00	20.0 0.0	750.00 0.00	30.00	1350.00
02FDAXAKAZ	FITTING 11546 53	NCI	N	T	3	2		0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	13.0 0.0	509.17 0.00	20.00	943.00
02FDAXAKBC	SWITCH SP337[illegible]	SYS	N	T	1	2		0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	51.0 0.0	1531.91 0.00	54.00	8651.00
02FDAXAKBH	SCREW M6X10DIN933-8.8B	NCI	N	T	7	4		0.0 0.0	0.00 0.00	1.0 1.0	.38 .38	0.0 0.0	0.00 0.00	49.0 0.0	18.62 0.00	85.00	151.50
02FDAXAKBL	SCREW M6X16DIN963-8.8B	NCI	N	T	7	2		0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	18.0 0.0	6.48 0.00	17.00	18.88
02FDAXAKBP	BOLT, LOCK 11546[illegible]	NCI	N	T	3	2		0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	14.0 0.0	780.00 0.00	22.00	1430.00
02FDAXAKBR	PLATE-STRIKER 11546[illegible]	NCI	N	T	3	2		0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	13.0 0.0	7241.00 0.00	17.00	9469.00
02FDAXAKBU	SHIM 11546[illegible]	NCI	N	T	3	2		0.0 0.0	0.00 0.00	1.0 1.0	119.17 119.17	0.0 0.0	0.00 0.00	20.0 0.0	2383.33 0.00	38.00	4290.00
02FDBA	CLIP NAS1464-077-10C	NCI	N	T	3	1		0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	2.0 0.0	1.58 0.00	3.00	2.37
02FDBD	CLIP NAS1464-112-08	NCI	N	T	3	1		0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	2.0 0.0	1.58 0.00	3.00	2.37
02FDBE	SEAL 11544767-3	SYS	N	T	7	1		0.0 0.0	0.00 0.00	2.0 2.0	73.54 73.54	0.0 0.0	0.00 0.00	125.0 0.0	4596.25 0.00	169.00	6214.13
02FDBF	PLATE AY 11544728	NCI	N	T	7	1		0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	1.0 0.0	12.70 0.00	2.00	25.40
02FFAA	SCREW-THUMB 11597[illegible]	NCI	N	T	3	4		0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	6.0 0.0	51.00 0.00	8.00	68.00
02FFAB	PIN MS16562-28	NCI	N	T	3	4		0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	0.0 0.0	0.00 0.00	6.0 0.0	1.32 0.00	8.00	1.76
02FFAC	WASHER MS27183-12	NCI	N	T	3	4		0.0 0.0	0.00 0.00	1.0 1.0	.00 .00	0.0 0.0	0.00 0.00	44.0 0.0	.15 0.00	76.00	2.28

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Figure 11

OUTPUT NO 5 SUBSYSTEM SPARES PROVISIONING REPORT 09/20/78

FUNCTIONAL GROUP CODE		CRGN	DSU	GSU	DEPOT
02A	INITIAL SPARES COST	143290. 143290.	884000. 884000.	0. 0.	5063272. 5063272.
02A	INITIAL SPARES WT (LBS)	481. 491.	3042. 2971.	0. 0.	12710. 0.
02A	INITIAL SPARES VOL (CU FT)	23. 23.	153. 150.	0. 0.	651. 0.
02A	TOTAL LINE ITEMS	19 18	11 11	0 0	147 0

		COST	WT	VOL	LI
02A	INITIAL WASHOUTS 1ST 2 YEARS	881343.	2820.	141.	112
02A	ANNUAL REPLENISHMENT	440672.	1410.	71.	112.

Figure 12

OUTPUT NO. 6

LOGISTIC LIFE CYCLE COST IMPACT REPORT
FOR FGC 02A

$POLP

COST ACCOUNTS		COSTS IN THOUSANDS OF DOLLARS		
INVESTMENTS PLUS OPERATIONS AND SUPPORT				20180.5
INVESTMENT			11993.7	
INITIAL SPARES AND REPAIR PARTS		11856.5		
INITIAL SPARES	10975.2			
WASHOUT SPARES	881.3			
1ST DESTINATION TRANSPORTATION		13.3		
2ND DESTINATION TRANSPORTATION		7.4		
INITIAL SUPPLY ENTRY		51.7		
MAINTAIN SUPPLY SYSTEM		64.7		
OPERATING AND SUPPORT			8186.8	
REPLENISHMENT SPARES		4406.7		
TRANSPORTATION P/S		8.5		
HANDS ON MAINTENANCE LABOR		3447.9		
MAINTAIN SUPPLY SYSTEM		323.6		
DEPOT LABOR		0.0		

BUDGETARY FUNDING PROFILE	YEAR 1	YEAR 2	YEAR 3	TOTAL	C/O
PROC	18.1	0.0	0.0	18.1	4.1
OMA (ASF)	0.0	422.6	0.0	422 6	95.9

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Figure 13

Graphic Program File

ROLOG performs sensitivity per user request. The user is able to sensitize on any value by supplying the word location of the value to be sensitized and the four multipliers to be applied. This sets up a condition whereby ROLOG is run five times, once for a baseline calculation, and once for each of the four sensitivity multipliers. The variations of the sensitive variable and its corresponding life cycle cost and availability are stored on Tape 4, the PLOTS file. Tape 4 is used by the graphics program (GRAPH) to plot sensitivity in graphic format. A sample GRAPH report is shown in Figure 16. Refer to 6.0 for further information on the GRAPH program.

Modified Data Base File

If the ROLOG Data Base needs modifications, they may be made during a ROLOG run and a new Data Base catalogued. Tape 9 contains the modified data base. For further information on the use of and means of implementing this modification refer to paragraph 4.4.

4.3 ROLOG Input Format

Designed to provide the user with a flexible and accurate assessment of the impact of varying logistic parameters, ROLOG utilizes the ROLOG Data Base file and data cards. The data cards provide ROLOG's versatility, enabling the user to make corrections to and save the Data Base, alter the values of variables, consider the options of printing various reports and sensitizing on a particular value. The Title card in the data deck sets up the conditions of a particular run. It gives the run description and sets a series of switches which determine whether all or part of the ROLOG Data Base is to be used, whether modifications to the Data Base will be made, and whether skill specialty codes need to be updated. At user discretion, a single value may be temporarily modified for a specific scenario by using the LOC, VAL, GNRC codes or the Data Base may be modified permanently and saved by setting ISWTCH and supplying the changes to be made.

The Namelist Constants are a list of variables whose values may be changed through data cards to reflect a particular scenario. ROLOG is designed specifically for the US ROLAND weapon system which utilizes a four maintenance level support structure and two geographic area deployments. To simplify the input array

description for Level of Maintenance and Geographic Area Depbyment, the subscripts I and J are used throughout the program. I and J are defined as follows:

Level of Maintenance (I)

I = 1 Organization (Battery)

I = 2 Direct Support Unit (DSU)

I = 3 General Support Unit (GSU)

I = 4 Depot

Geographic Area Deployment (J)

J = 1 CONUS

J = 2 Overseas (U. S. Army Europe)

All cost variables in the Namelist are values in dollars unless otherwise specified. Percentage factors used in Namelist must be converted to a fraction by dividing by one hundred (10% = $\frac{10}{100}$ = .1). The following Namelist Constants are input through data cards:

CMLI — Cost per year of maintaining a line item in the supply system. Current code - 1295.

CPNLI — Cost of entering a line item into the Federal supply system. Current code - 2070.

IPR — Print switch to inhibit printing of undesired subsystem reports. All subsystem reports will be printed unless the value one (1) is input to shut off the print on a particular report. The Provisioning Item List may be sorted and printed in part number sequence. Inserting the value two (2) in the fourth element of the IPR array sets the switch to print a sorted Provisioning Item Report. The positions of the reports in the IPR array are as follows.

1. Operational Availability Ø
2. Maintenance Manhours by Equipment Ø
3. Maintenance Manhours by Skill Specialty Code Ø
4. Provisioning List Ø
5. Provisioning Summary Ø

ISE — The word location in the data base of the value on which sensitivity is to be performed. Sensitivity may be performed on any word location less than 50 or greater than 5000. Refer to Table III for the list of ROLOG variables and their word locations.

OST — Order-Ship-Time is time in days required to obtain resupply from the next higher level of supply point. OST will vary from commodity to commodity and from year to year.
Current value: .25,2,7,21,.25,2,7,42
Array Size - I,J

PAY — Hourly labor rate for maintenance manhours.
Current code: 9.313,19.
Array Size - J

PAYD — Hourly labor rate for maintenance manhours at the Depot level in dollars.
Current code - 19.

PLCB — The unit learning curve factor (90% = 9) for BAC subsystems.

PLCH — The cumulative average learning curve factor for HAC subsystems.

PNLI — Factor representing that percentage of all line items that are new.
Current code - .17

PRF — Productivity Factor is input to compensate for leave, sick, military duties, etc., for maintenance personnel and will vary by operational scenario and geographic location.
Current value: .5, .5
Array size: J

PSO — Probability of Stockout is acceptable probability of a repair part being out of stock when needed.
Current value: .20, .20, .20, .15, .15, .15, .15, .15
Array size: I,J

QM — Quantity of Maintenance Points (ORG, DSU, GSU, DEPOT) per deployment area.
Current value: Classified.
Array Size: I,J

QS — The quantity of system requiring maintenance support.
Current Value: Classified.
Array Size: J

QTY — The quantity of systems procured during investment.

SEN — Sensitivity multiplier to be applied in sensitivity analysis. Must be input on sensitivity run. Since the baseline is hard coded as 1, the first two values must be less than 1 and the last two greater than 1

to generate the desired curve of sensitivity.
Current code: 1., 1., 1., 1.
Array size: 4

SEUK — Support Equipment Utilization is a factor to compensate for nonproductive support equipment time. It compensates for support equipment maintenance, and self test, warm up times, movement to point of need, etc.
Current code: .8, .8, .9, .9, .8, .8, .9, .9
Array size: I,J

SMP — No. of systems supported by each supply and maintenance point.
Array size: I,J

TVOA — Track Vehicle Operational Availability is an input value rather than computed.
Current value: .980, .980
Array size: J

T1 — Cost per pound for transportation from manufacturer to depot.

T2 — Cost per pound of second destination transportation costs.
Array size: J

WAIT — Wait is the maximum acceptable wait in days for repair parts at the remove-replace location. To eliminate this constraint on provisioning a very high value can be put.
Current code: 1., 3., 30., 90.
Array size: I

XMLDT — Mean Logistic Downtime is the mean wait in hours for maintenance personnel and equipment when a failure occurs.
Current code: .5, .5
Array size: J

YOP — Years of Operational Support
Current Code: 10

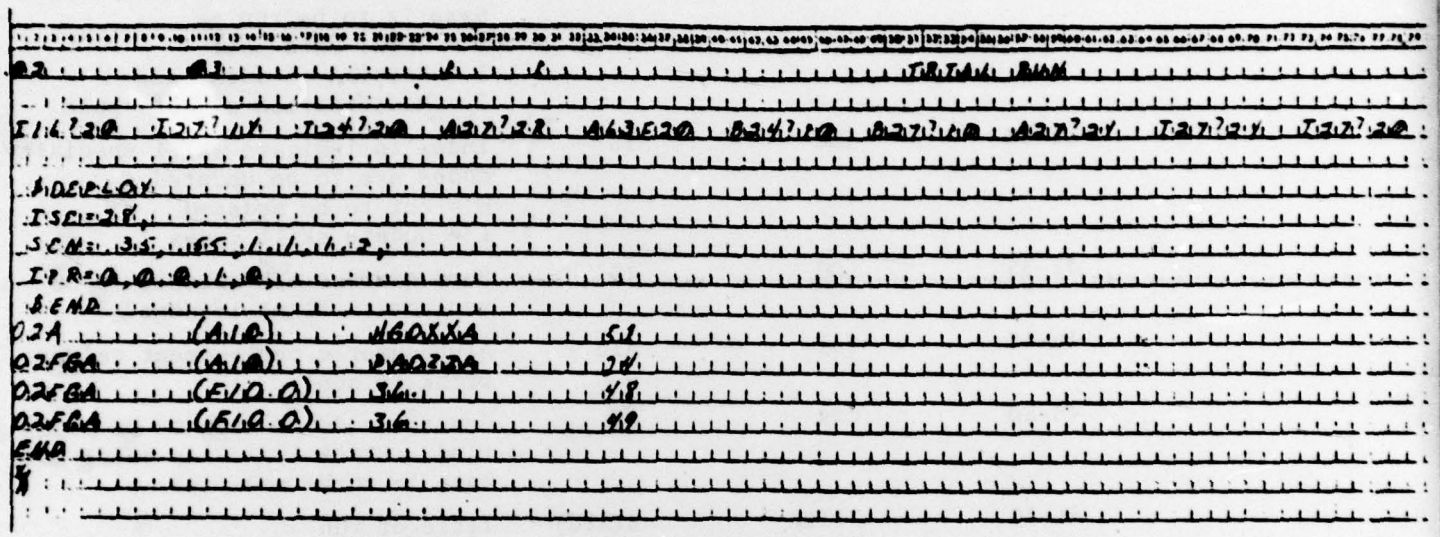
YP — Mean full production period in years
Current code: 2

The formats used on the data cards are as follows:

Card	Columns	Variable	Format	Remarks
1	1-10	SYS	A10	FGC of first system to be processed. Use the word All if entire data base is to be run

Card	Columns	Variable	Format	Remarks
	11-20	SYSE	A10	FGC of first item following last item to be processed. Use the word All for entire data base.
	21-25	ISWTCH	I5	Index to indicate if entire data base is to be run. Ø = Total data base 1 = Portion of data base 2 = Modification of data base
	26-30	ISC	I5	Index to indicate skill specialty codes are to be updated. Ø = not to be updated 1 = update skill codes
	31-35	LOC	I5	Word address of variable to be replaced. Blank if none.
	36-45	Val	A10	Alphanumeric replacement values. Blank if none.
	46-50	GNR	A5	Generic code of data to be modified. Blank indicates total data base is to be modified.
	51-80	TITLE	3(A10)	Title of run
2-N	1-80	SCC	A7	Skill specialty codes input to update run. Ten skill codes per card may be input, leaving a blank space between each code.
N+1	2-9	$DEPLOY		Namelist card. Must be input in every run.
N+2-x	2-NN	Constant		Name of namelist constant followed by = sign.
	NN-	Value	Alpha-Numeric	Update value of namelist constant. Comma between each value in array and as last character.
X+1	2-5	$END		End of Namelist. Must be input in every run.
X+2-XX	1-10	FGCI	A10	FGC of record to be modified.
	11-20	FOR	A10	Format of value to be modified.
	21-30	VALU	A10	Input value.
	31-55	LOCA	I5 (right justified)	Word address of value to be replaced.
XX+1	1-10	END	A3	The word END signifies end to the modification data.

Card	Columns	Variable	Format	Remarks
XX+2	1	Terminator (7/8/9)	Multi-Punch	



*NOTE: The hazard of using the ROLOG run to modify the Data Base is that the word location of the value to be changed must be accurate or the wrong value may be impacted. In adding new data to a record, the additional word addresses must be input in consecutive order. Gaps between locations will cause erroneous data to be written to the new record. When making changes to more than one record, the FGC's must be arranged in alphabetical order. Any modifications to the Data Base should be cross checked with the existing Data Base by using the Data Base Reports obtained from the Data Base Build or the Data Base Update Routines. Refer to Table III for a list of the variables used in ROLOG and their word locations.

4.5 SORTMRG Input Format

The primary sort key of the Support Equipment file, SEU is the first three characters of the functional group code. The secondary sort key is the sixteen character part number. SORTMERGE data inputs begin in Column 1.

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```
Card
1       SORT
2       FILE,INPUT=TAPE7(R),OUTPUT=TAPE10(CR)
3       FIELD,MAJ(1,3,DISPLAY)
4       FIELD,MIN(21,16,DISPLAY)
5       KEY,MAJ(A,COBOL6)
6       KEY,MIN(A,COBOL6)
7       END
8       TERMINATOR(7/8/9)
```

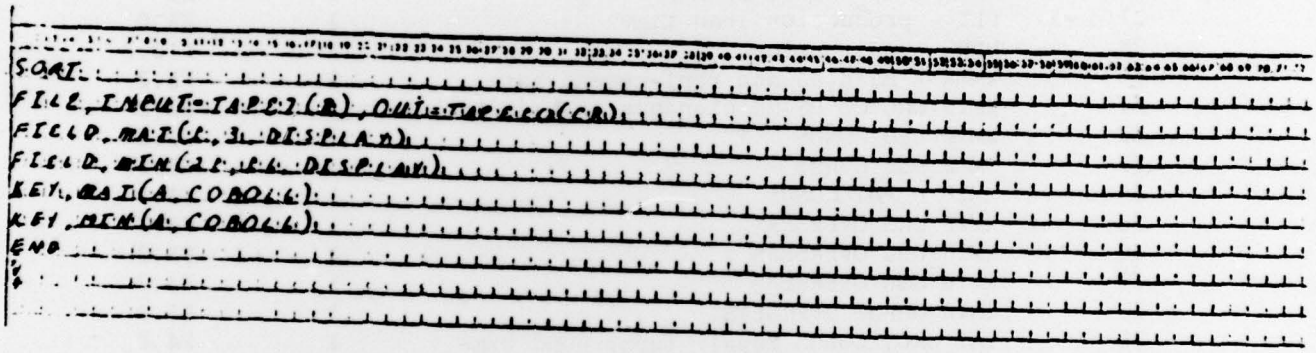


TABLE III ROLOG Data Base Layout

This table reflects only those variables used in ROLOG Programs

WORD LOCATION	VARIABLE NAME	NUMBER OF WORDS	FORMAT
1,2	FGC - functional group code	2	A10,A1
3,4	XMPN - part number	2	A10,A6
5,6	XNME - part name	2	A10,A9
10	GNRC - generic code	1	A5
11	XISQ - international interchangeability	1	A1
20	VOLP - volume packaged	1	F5.2
21	WTP - weight packaged	1	F6.2
24	SMRC - source maintenance & recoverability code	1	A6
25	ESSE - essentiality code	1	F2.0
26	RPS - repairability status	1	A1
27	PLT - production lead time	1	F3.0
28	UPRC - unit price	1	F10.2
30	XMMR - maintenance replacement rate	1	F5.2
31	XMTD ORG CONUS-maintenance task distribution	1	F3.2
32	XMTD DSU CONUS	1	F3.2
33	XMTD GSU CONUS	1	F3.2
34	XMTD DEPOT CONUS	1	F3.2
35	XMTD ORG OVERSEAS	1	F3.2
36	XMTD DSU OVERSEAS	1	F3.2
37	XMTD GSU OVERSEAS	1	F3.2
38	XMTD DEPOT OVERSEAS	1	F3.2
39	TAT ORG, CONUS repair turnaround time	1	F4.0
40	TAT DSU CONUS	1	F4.0
41	TAT GSU CONUS	1	F4.0
42	TAT DEPOT CONUS	1	F4.0
43	TAT ORG OVERSEAS	1	F4.0
44	TAT DSU OVERSEAS	1	F4.0
45	TAT GSU OVERSEAS	1	F4.0
46	TAT DEPOT OVERSEAS	1	F4.0
47	QPNHA - quantity per next higher assembly	1	F5.0
48	XMFC - maintenance factor, this application	1	F4.0
49	XMFAC - summed maintenance factor	1	F4.0
50	TASK I - number of tasks	1	I10
5001	PSO ORG CONUS - probability of stockout	1	F4.3
5002	PSO DSU CONUS - probability of stockout	1	F4.3
5003	PSO GSU CONUS - probability of stockout	1	F4.3
5004	PSO DEPOT CONUS - probability of stockout	1	F4.3
5005	PSO ORG OVERSEAS - probability of stockout	1	F4.3
5006	PSO DSU OVERSEAS - probability of stockout	1	F4.3
5007	PSO GSU OVERSEAS - probability of stockout	1	F4.3
5008	PSO DEPOT OVERSEAS - probability of stockout	1	F4.3
5009	WAIT ORG	1	F4.0
5010	WAIT DSU	1	F4.0
5011	WAIT GSU	1	F4.0
5012	WAIT DEPOT	1	F4.0

4.5 ROLOG Job Control Language

The job control language used in ROLOG is as follows:

```
                                                        Comments
LIMIT(4000)
ATTACH,OLDPL,PRBAT,ID=PRWALT,CY=001.
ATTACH,OLDBIN,PRBAT,ID=PRWALT,CY=002.
UPDATE,N.
FTN,I=COMPILE.
REWIND,LGO.
COPYL,OLDBIN,LGO,NEWBIN.
RETURN,OLDPL.
RETURN,OLDBIN.
RETURN,LGO.
REQUEST,TAPE4,*PF.
REQUEST,TAPE9,*PF
ATTACH,TAPE20,PRLSAR,ID=PRTACRAC,CY=003.          ROLOG Data Base File
FILE(TAPE7,BT=I,RT=W,MRL=120)
FILE(TAPE16,BT=I,RT=W,MRL=300)
LDSET(FILES=TAPE7)                                Unsorted SEU File
LDSET(FILES=TAPE16)                               Unsorted Provisioning File
LDSET(FILES=TAPE17)                               Sorted Provisioning File
NEWBIN(PL=77777)
*CATALOG,TAPE4,Permanent File Name,ID=Name,CY=Cycle. PLOTS File
*CATALOG,TAPE9,Permanent File Name,ID=Name,CY=Cycle. Data Base File
RETURN,NEWPL.
RETURN,TAPE20.
RETURN,TAPE16,TAPE17.
REWIND,TAPE1,TAPE2,TAPE3,TAPE7,TAPE8,TAPE15.      Tabular Report Files
COPYCF(TAPE1,OUTPUT)                              Operational Availability
COPYCF(TAPE2,OUTPUT)                              Maintenance Manhours by Equip.
COPYCF(TAPE3,OUTPUT)                              Maintenance Manhours by SSC
COPYCF(TAPE8,OUTPUT)                              Provisioning Summary
COPYCF(TAPE15,OUTPUT)                             Error Listing
REQUEST,TAPE10,*PF.
FILE(TAPE10,BT=1,RT=W,MRL=120)
LDSET(FILES=TAPE7/TAPE10)
SORTMRG.                                          Execute SORTMRG
*CATALOG,TAPE10,Permanent File Name,ID=Name,
     CY=Cycle.                                    Sorted SEU File
EXIT.
DUMP(100000)
REWIND,TAPE1,TAPE2,TAPE3,TAPE8,TAPE15
COPYCF(TAPE1,OUTPUT)
COPYCF(TAPE2,OUTPUT)
COPYCF(TAPE3,OUTPUT)
COPYCF(TAPE8,OUTPUT)
COPYCF(TAPE15,OUTPUT)
7/8/9
ROLOG Data Deck
7/8/9
```

```
SORT
FILE,INPUT=TAPE7(R),OUTPUT=TAPE10(CR)
FIELD,MAJ(1,3,DISPLAY)
FIELD,MIN(21,16,DISPLAY)
KEY,MAJ(A,COBOL6)
KEY,MIN(A,COBOL6)
END
7/8/9
6/7/8/9
```

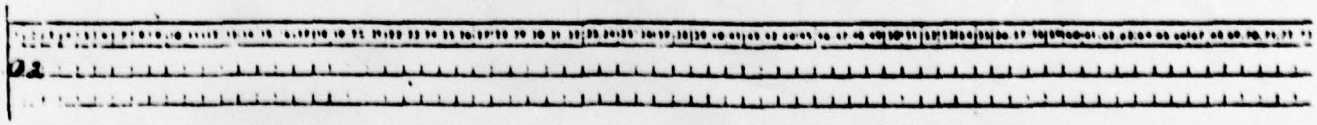
*These CATALOG commands may be eliminated from the job control stream depending on the user's requirements.
Tape 4 is only catalogued during a sensitivity run.
Tape 9 is only catalogued if ROLOG is modifying and creating a new Data Base.
Tape 10 is catalogued if the SEU program is to be run.

5.0 SUPPORT EQUIPMENT UTILIZATION (SEU)

Support equipment usage calculations based upon mean elapsed time are computed in the ROLOG program where they are sorted by FGC and by part number. SEU attaches this file, Tape 10, to sum, print, and resort the support equipment utilization data by subsystem and by system. An internal sort is utilized to sort the equipment utilization at the system level. Refer to Figure 14 for a flow diagram of SEU. The subsystem and system reports generated in SEU list the support equipment items by their classification grouping in part number order and give the support equipment usage at each of the four maintenance levels in the two deployment locations, CONUS and Overseas (Europe). Refer to Figure 15 for a sample Support Equipment report.

5.1 SEU Input Format

The option is available of printing both subsystem and system reports or just the system report. A single data card input governs the print option. The data card format of the print switch opetion is a single 12 word starting in column 1. 02 indicates the subsystem report is to be printed. 01 indicates only the system report is required.



5.2 SEU Job Control Language

```
LIMIT(4000)
FILE(TAPE10,BT=I,RT=W,MRL=180)                    Sorted subsystem SEU File
ATTACH,TAPE10,PERMANENT FILE NAME,ID=NAME,CY=CYCLE.
FILE(TAPE12,BT=I,RT=W,MRL=180)                    Sorted subsystem SEU File
LDSET(FILES=TAPE10/TAPE11,TAPE12)                 Execute SEU
LGO
EXIT
DMP(1000000)
7/8/9
Data Input
7/8/9
6/7/8/9
```

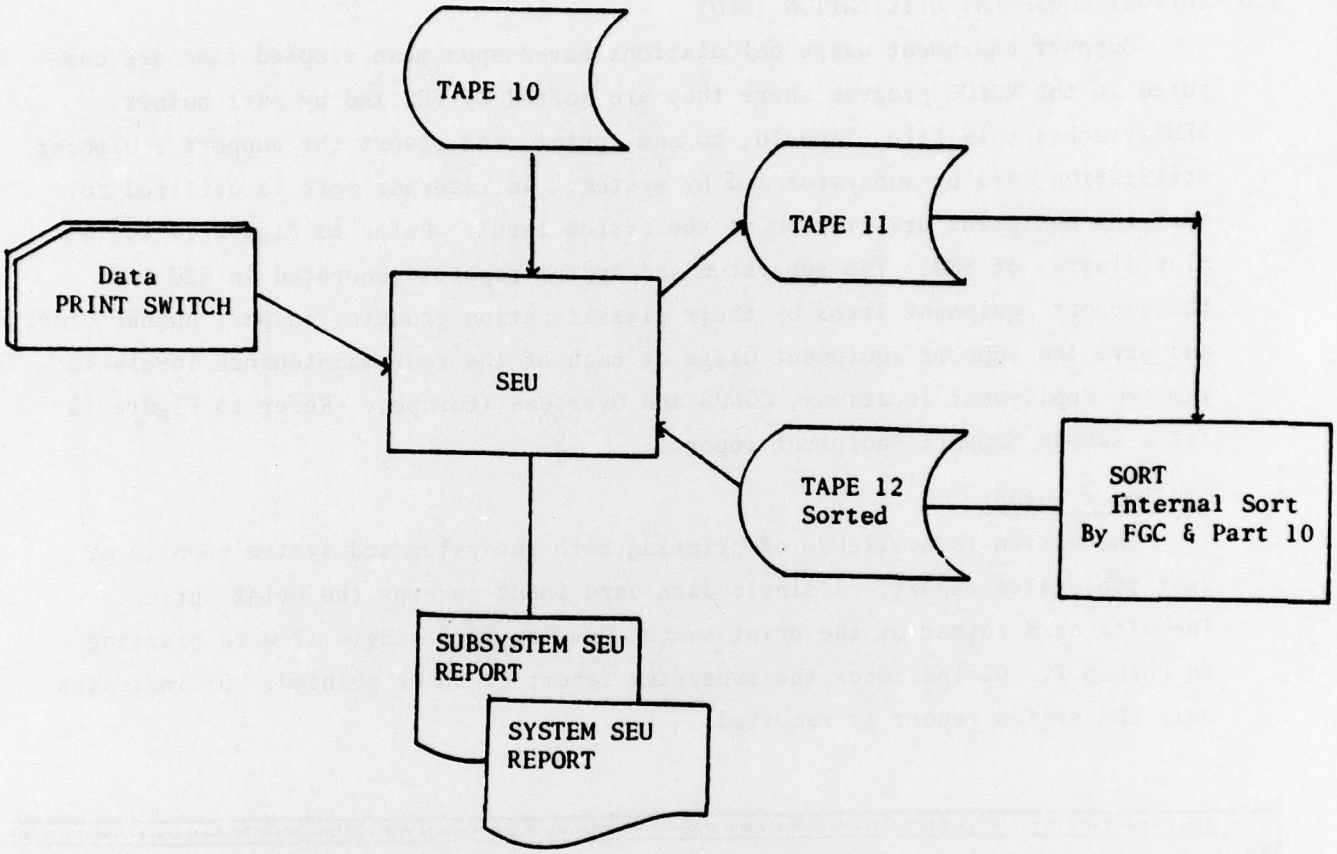


Figure 14. SEU Flow Diagram.

OUTPUT NO.5 ANNUAL SUPPORT EQUIPMENT USAGE 05/22/78

SYSTEM	PART NUMBER	NOMENCLATURE	ICC	CONUS				OVERSEAS			
22				1 ORGN	1 DSU	1 GSU	DEPOT	1 ORGN	1 DSU	1 GSU	DEPOT
	12MR-2R01	CABLE	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11050	ADAPTER,RF CABLE	J	2.15	0.00	0.00	0.00	2.15	0.00	0.00	0.00
	11516.2	CONTROL BOX	2	[illegible]	1.98	[illegible]	0.00	0.00	1.98	0.00	0.00
	11516010	MOUNT KIT MD SCR	1	52.68	0.00	0.00	0.00	52.68	0.00	0.00	0.00
	11517697	HORN MAST,2MT	2	.28	0.00	0.00	0.00	.28	0.00	0.00	0.00
	11516589	CONTROL UNIT 2RC	2	134.84	0.00	0.00	0.00	134.84	0.00	0.00	0.00
	11519-68	2MR TRANSPONDER	2	133.53	0.00	0.00	0.00	133.53	0.00	0.00	0.00
	11519682	HORN TRANSPOIDER,RD	2	2.03	0.00	0.00	0.00	2.03	0.00	0.00	0.00
	11519652	TESTER UNIT(2PA)	2	134.84	0.00	0.00	0.00	134.84	0.00	0.00	0.00
	11519659	CABLE(41)	2	3.07	0.00	0.00	0.00	3.07	0.00	0.00	0.00
	11519661	CABLE(43)	2	3.07	0.00	0.00	0.00	3.07	0.00	0.00	0.00
	11519663	CABLE(45)	2	3.07	0.00	0.00	0.00	3.07	0.00	0.00	0.00
	11519666	CABLE(49)	2	3.07	0.00	0.00	0.00	3.07	0.00	0.00	0.00
	11519676	CABLE ASSY (N16)	2	2.03	0.00	0.00	0.00	2.03	0.00	0.00	0.00
	11520022	POWER SUPPLY 2RB	2	134.84	0.00	0.00	0.00	134.84	0.00	0.00	0.00
	11545195	PROGRAM ADAPTER 2PA	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11546132	CONTROL BOX	2	.02	31.66	0.00	0.00	.02	31.66	0.00	0.00
	11546163	MIR MOUNT	2	.02	33.65	0.00	0.00	.02	33.65	0.00	0.00
	11546168	WRENCH SPECIAL	L	21.29	0.00	0.00	0.00	21.29	0.00	0.00	0.00
	11547133	2PA CMD ANT ALIG TL	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547139	CABLE 2PA-P5 GE-P1	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547140	CABLE 2PE-P3 SW-P19	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547172	2GA NITRC SUP UNIT	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547187	PROGRAM PROCESS 2P3	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547236	PROGRAM CONTROL 2P2	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547294	LAUNCH SEQ UNIT 2SE	2	20.12	0.00	0.00	0.00	20.12	0.00	0.00	0.00
	11547296	2PL OPTICAL SIG SLS	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547297	HORN MAST,2MT	2	1.75	0.00	0.00	0.00	1.75	0.00	0.00	0.00
	11547324	CABLE 2PA-P1 2P3-P1	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547326	CABLE 2PA-P3 GP-P1	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547327	CABLE 2PA-P4 EG-P3	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547328	CABLE 2PA-P5 LW-P3	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547329	CABLE 2PA-P7 LW-P1	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547330	CABLE 2PA-P8 VW-P21	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547331	CABLE 2PA-P9 VW-P22	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547332	CABLE 2PE-P2 2PC-P1	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547333	CABLE TG-P1 EJ-P3	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547334	CABLE TP-P1 2SE	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547336	CABLE 2PB-P4 2MT-P1	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547436	2TF SIMULATOR ROUND	2	20.12	0.00	0.00	0.00	20.12	0.00	0.00	0.00
	11547633	2GV ADAPTER SUPPORT	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11547825	CABLE 2PA-P2 LE-P9	2	10.06	0.00	0.00	0.00	10.06	0.00	0.00	0.00
	11560375	CABLE SET	2	131.77	0.00	0.00	0.00	131.77	0.00	0.00	0.00
	11562...	TEST SET,RF-FMTS	2	.02	555.94	0.00	0.00	.02	555.94	0.00	0.00
	11564139	DOLLY	3	86.92	36.56	0.00	0.00	86.92	36.56	0.00	0.00
	14300150	SCOR,FL TIP EMM	K	12.00	151.87	0.00	0.00	12.00	151.87	0.00	0.00
	14364...	SCOR,FL TIP	K	1.78	414.54	0.00	0.00	1.78	414.54	0.00	0.00

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Figure 15

6.0 GRAPHICS DISPLAY (GRAPH)

Graph is a stand alone program whose function is to plot a cost effectiveness analysis. Tape 4, a ROLOG produced file, is the only data input required. GRAPH plots availability and life cycle cost on the same graph, each as a factor of the sensitized variable. This program is designed for use with the TEKTRONICS 4014 terminal and the TEKTRONICS PLOT 10 software.

6.1 GRAPH Job Control Language

The following interface directions are to be implimented on the TEKTRONICS 4014 terminal for executing the GRAPH program.

```
                                                    Comments
ATTACH,OLDPL,PRBAT,ID=PRWALT,CY=003.                GRAPH
ATTACH,Tape4,Permanent File Name,ID=Name,CY=Cycle.PLOTS File produced by ROLOG
REWIND,DUMMY.
UPDATE,F,I=DUMMY.
FTN,I=COMPILE.
ATTACH,AGII,TEKTRONIX4014,ID=WTPLOT,CY=002.      TEKTRONICS PLOT 10 software
LIBRARY,AGII.
LGO
```

The system software is not available to obtain hard copies automatically, therefore to the system message

```
DO YOU WISH AUTOMATIC HARD COPIES
PLEASE ANSWER YES OR NO
. .
```

enter the word NO

To the system message

```
BUILD A TABLE OF DESIRED FGC... ENTER FGC STRING SEPARATED BY A COMMA
ENTER THE WORD ALL IF ALL FGC's ARE DESIRED
. .
```

the user may determine whether to obtain plots of all FGC's by entering the word ALL, or plots of any one or more FGC's by entering the FGC's desired.

A manually operated copier is available to obtain copies of the plots. When the tone sounds denoting a plot is finished, and a copy has been made, enter the letter N to go on to the next plot. Refer to Figure 16 for an example of a GRAPH plot.

To the system message

```
LAST PLOT COMPLETED
ENTER 1 TO CONTINUE ENTER 2 TO STOP
. .
```

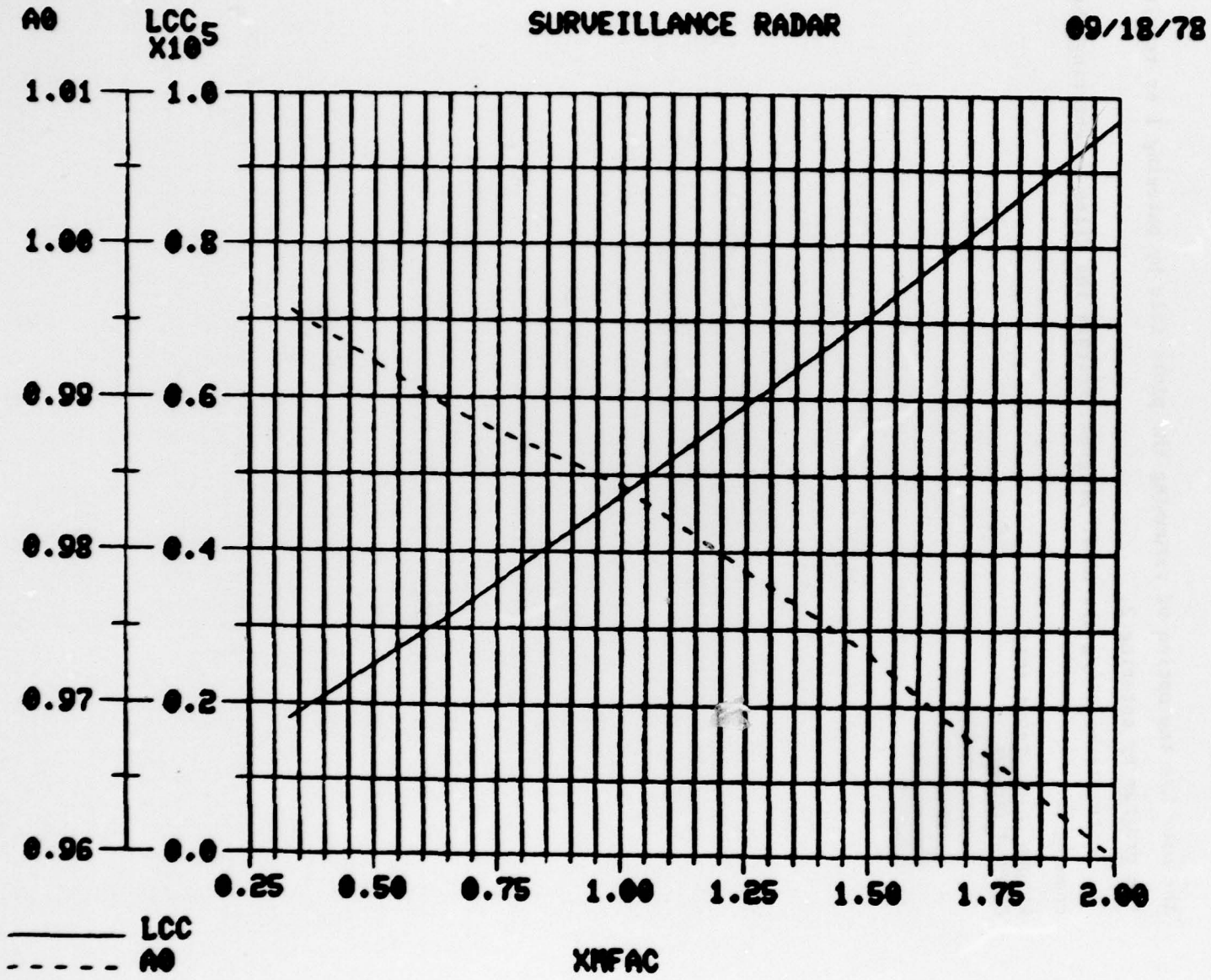
A0
LCC X10^5
SURVEILLANCE RADAR
09/18/78
1.01
1.00
0.99
0.98
0.97
0.96
1.0
0.8
0.6
0.4
0.2
0.0
0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00
LCC
A0
XMFAC

Figure 16

the user has the option of rerunning the plots file by entering 1 or terminating the program by entering 2.

After terminating the GRAPH program, release the files by entering the command

```
RETURN,OLDPL,TAPE4,AGII
DISCONT,OUTPUT
```